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1928

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Thesis

INTELLIGENCE AND INTEREST AS FACTORS IN GUIDANCE

Submitted by

Mercedes Ellen O'Brien

(B.S. in Ed., Boston Teachers College, 1927.)

In partial fulfilment of requirements for  
the degree of Master of Education

1928

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Thesis

EDUCATION AND THE STATE IN CANADA

by

WILLIAM A. CRITCHFIELD

Ph.D. in Education, University of Toronto, 1967

Department of Education, University of Toronto

For the degree of Doctor of Philosophy

1967

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# INTELLIGENCE AND INTEREST

## AS FACTORS IN GUIDANCE.

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## CHAPTER I

### Introduction

#### CHANGING EMPHASIS IN GUIDANCE

The traditional introduction to a discussion upon guidance is to point out that, insofar as an informant takes the time to be concerned with the subject, to the extent that it is believed by him that it is a necessary part of the educational process, it has existed as an educational procedure from the very earliest and crudest beginnings of schools. The movement to incorporate guidance into the program of progressive education is, however, of comparatively recent origin. Possibly we are too close to the beginnings to speak authoritatively upon any salient trends. Nevertheless, the two decades which have elapsed since its inception all contain periods of emphasis which have been marked by several shifts of emphasis from one phase of the work to another.

Writers upon guidance are accustomed to speak as if this movement originated in one place, and that the efforts of one man, and from this center radiated into the educational system. To take this view is to lose the proper perspective, and to miss the true significance of the movement.



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## INTELLIGENCE AND INTEREST AS FACTORS IN GUIDANCE

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Educational reforms are not born in one place, nor created through the efforts of one individual. They have their source in a social need; their organization results from efforts of schools to respond to that need. They spread slowly or rapidly, widely or narrowly in proportion to the urgency and universality with which that need is felt by social groups. It often happens that one man or one system stands out pre-eminently as a pioneer in recognizing this lack in community life and in developing some practice to cope with it. Because of this --- man or system-- is identified with that movement and thrust into a position of leadership in it. This is the story of Frank Parsons and Boston: the one was the inspiration, the other evolved a workable organization to supply the deficiency he pointed out. But--and this is the error too frequently made-- this is not the story of the guidance movement. That had not one but a hundred and more beginnings.

When the true story shall be written, with all the facts, revealed by research, at hand--it will be found that guidance developed spontaneously in many communities never mentioned in the inadequate histories of the present--- small systems, isolated schools, administered

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by forgotten men, who, even before Parsons called attention to it, sensed this want in their community and shaped school procedure to meet it. That certain large cities, east and west, stand out as centers where guidance, once started, developed rapidly is understandable. In large groups not only are social needs more acutely felt because they affect greater numbers, but in themselves they exert pressure upon a school system. Few if any of the pre-Parsons attempts at guidance had wide influence upon educational policy. Their sponsors seem never to have appreciated the significance of their task, infinitely deeper and richer than mere adjustment to a local need. They never knew that they had touched upon a new educational philosophy and a new technique.

Today the guidance movement continues to increase in importance. The establishment of the junior high school, the avowed purpose of which is exploration under guidance of pupil interests and pupil abilities, the intrenchment of guidance as an activity of the secondary school, the tendency to extend the work into elementary grades, all have opened up fields of service undreamed of by leaders of the movement two decades ago. As a result the new guidance has outgrown theories and practices laid down then, when it seemed not only feasible but necessary to employ

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as counselors none but specially trained experts.

It is quite evident that if we accept the principle that guidance is essential everywhere-- in rural districts as in city schools, in poor systems as in rich ones-- then we must revise our theory and methods of guidance administration. As a result the conviction is gaining ground steadily that if guidance is to become a universal school function, it must in some way devolve upon that universal unit of school organization, the school-room with the class-room teacher.

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New techniques of counseling grow out of this departure, and new adaptations of old material. Most pressing, however, is the need to simplify into school-room terms and school procedures those phases of the work which, up to now, have been the special province of experts. For example, the subject of this paper, Intelligence and Interest as Factors in Guidance, has been discussed many times by experts and for experts, but seldom if ever from the standpoint of aiding that latest comer into guidance, the class-room teacher.

The  
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With this shift of emphasis from the expert to the teacher as the agent of guidance, the movement enters upon the fourth distinct phase of its development. The other periods may be marked off roughly as 1908 to 1914; 1914 to 1920; 1920 to 1925; and 1925 to the

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present. These divisions are arbitrary as all divisions in educational development must be, since periods and phases merge intangibly, one into the other.

Possibly the best way to catch what, at any given period, men think, believe, or hope for, is to read the writings of that period, particularly the periodicals and the more ephemeral articles which mirror all shades of thought: the vexations, the uncertainties, the criticisms or commendations of current practices. It is from such readings as these that the limits of the periods have been set, and the outstanding emphasis determined. If the method appears unscientific--because it brings in of necessity the subjective element-- it has this justification. It was the single practical method for this situation.

The years 1908 to 1914 have been designated as the period of beginnings. The emphasis was distinctly vocational, and the service rendered social rather than educational. This last statement may require interpretation. A study of the many chapters upon guidance in the books of this period, or of the large number of magazine articles which are available in the files of those years, shows that two main ideas possessed the minds of the early writers and thinkers who were fumbling their way to a philosophy and theory of guidance. These two ideas

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were the need of definite vocational choice by young persons, and the responsibility of someone-- either school department or private philanthropical organization-- to procure placement in industry for those who needed work, and in particular for the group who through lack of definite preparation found themselves in unskilled jobs.

The departments which were organized during this period were weighted heavily upon the placement side, and whether they were part of a school system or not, they were almost wholly apart from the schools, revolving on a separate orbit, and rarely touching the class-room.

Two notable books mark this period: Parson's Choosing a Vocation and President Eliot's essay upon The Value During Education of the Life Career Motive. Of the two the second had a more constructive influence, if not a wider one, for, as the period of beginnings progressed, school men began to see that if a life career motive had educational value, of necessity it could not be separated from school-room practice. That this essay was not typical of all thought during this period may be seen from a glance at some of these titles selected at random from Bloomfield's book, Readings in Vocational Guidance. This is a collection of the best contributions to guidance literature up to 1915. The titles are as follows:

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The Social Waste of Unguided Personality-----Woods  
The Wasteful Recruiting of Trades and Occupations  
The Industrial Factor in Education-----Henderson  
Some Problems of Industrial Education-----Ayres  
An Inquiry Into the Vocational Aims of Pupils-Davis  
Work, Wages, and Schooling of Boys-----Lewis  
The School and the Working Child -----Breckinridge

The date 1914 has been set as the beginning of the second period in guidance, for in that year two books were published which definitely placed the work where it belonged-- within, and not without the class-room. These books were Vocational and Moral Guidance by Jesse B. Davis, then principal of Grand Rapids High School, and Educational Guidance by Kelly, one of the Columbia Contributions to Education. The effect of these books was felt in the very general acceptance of the idea that, whatever might be the responsibility of the school to provide for some children placement in industry, and follow-up, it was an obligation of the school to provide guidance of a sort for all children.

The outcome of this recognition was that in some places were established life career classes: essentially attempts to give occupational information. In other places an endeavor was made to give guidance



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guidance through studies already contained within the curricula: English, geography, civics. In many places, even today, the work has progressed no farther than this. The great contribution of this period was the annunciation of one of the fundamental principles of guidance: that the responsibility for this function rests chiefly upon the school.

In 1920 there appeared in the movement a new phase of development, one more nearly related to the first period, with its emphasis upon vocation, than to the second. This phase was the direct outgrowth of the influence of war-time attempts to use psychology to determine the intellectual levels of men and of occupations--the hunt to find prognostic tests which would classify the abilities of workers in some more efficient and less wasteful way than the old trial and error method of selection. These attempts of industry were carried over into the educational field and the guidance movement was shot through with research aimed to discover how far school subjects were prognostic, and how far the intelligence level of a student was a safe index to guidance counseling.

These attempts were for the most part abortive, and their findings so uncertain that skilled counselors frowned upon their use. Nevertheless this period has made a very distinct contribution towards guid-

The  
third  
movement



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ance development, the formulation of scientific procedures in the technique of counseling.

The present period is too new, too close at hand to permit a critical view. Nevertheless it is very evident that, up to the present time, the outstanding tendency is to make the class-room teacher the guidance counselor, a procedure which is gaining favor everywhere, because

The  
present  
period

- a. It makes use of existing organization rather than creating a new organization
- b. It provides a scheme universally practical, and requiring only adaptation to local conditions.
- c. It does not add to the present burden of school expense.

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## CHAPTER II

### An Explanation of the Problem.

In the last chapter the statement was made that intelligence and interest as factors in guidance have very frequently come under the attention of experts in psychology or in guidance, but that the results of these studies have been of interest and value chiefly to other specialists. This paper, on the contrary, will try to handle these subjects from the point of view of the average class-room teacher who has, usually, little training in the intricacies of statistics. As a result little refinement of data has been attempted.

A sentence or two may be necessary to make clear that part which the class-room teacher plays ---in a system of universal guidance-- which makes materials such as this of help to her.

In guidance, as in other subjects, definite techniques have developed. If it is kept in mind that the major objective of guidance is to lead the child to self discovery--that is, to acquaint him with his interests and abilities-- and to encourage him in the self-determination of his future career, then it is clear that

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the major technique must be that which is aimed to aid him in such discovery and such determination. This is termed "counseling" and it is this which must devolve upon the home-room teacher.

There are two main devices through which the counselor works: the group conference-- not essentially different from any good teaching lesson and to which both the major techniques of instruction and the laws of learning apply--- and the personal interview. The minor techniques of guidance: placement, follow-up, occupational and educational research, are not germane to the present topic since the teacher counselor rarely participates in them.

Interest and intelligence have been chosen as the subjects of this study because they are the factors fundamental to any program of counseling, and the two with which the teacher-counselor--as we must call the class-room teacher in her capacity as counselor-- is most frequently confronted. How far are they significant for her? To what extent shall she use them as indices? The point of view that is kept in view throughout this paper is that of any teacher, but particularly of the one in a small system or a rural school, who in all probability can not have the assistance of experts. This teacher will be confronted with cases to solve but she will have little

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time and little help other than the usual mechanics of the class-room.

Specifically then, the problem resolves itself into an attempt to investigate and evaluate as instruments of counseling and guidance such data as can be placed within the range of every class-room teacher: the results of intelligence tests, information such as age, grade, acceleration, retardation, accomplishment, pupil interests as expressed in vocational choice, pupil interests as expressed in course choice.

The  
specific  
problem

The group intelligence test has been chosen rather than the individual Simon-Binet for two reasons. Even had it been possible to collect for this study a body of data, based upon the results of individual tests, and large enough to warrant the drawing of certain conclusions, this data would have been rejected as out of keeping with the expressed standpoint of this paper-- the instruments at the command of the average teacher. Few small school systems, few rural schools, and few of the larger school systems, today either employ a trained psychologist or have teachers adequately equipped to administer the individual test. Even allowing a greater margin of error, the group test, when given a second time, to re-check results, can be made an effective instrument of measurement.

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The hundreds of scores used in this study were obtained through the courtesy of class-room teachers, school principals, and departments of tests and measurements. In the larger number of instances they are the results of a single group test because it was not possible to obtain carefully re-checked scores. Since these scores are used solely as a basis to show how group tests can be used as factors in counseling, and not made in themselves the basis of any specific counseling, this lack of re-checking will not in any way affect whatever conclusions may be drawn. It will be re-iterated here, however, that the result of a single group test should never be taken as conclusive evidence in a counseling program.

For the purposes of this study two premises have been accepted as true. First, these group tests do measure something which correlates highly with a child's ability to do abstract school work. Second, it is reasonable to believe that there are certain intelligence levels below which it is difficult if not impossible to do certain types and grades of school work. (80--85 for grammar school graduation; 86--90 for high school graduation.) It is no part of this discussion to state arbitrarily that pupils below certain mental levels may not complete a specified course. It merely accepts the levels which have been established. \*

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## PART I

### CHAPTER III.

#### Intelligence as a Factor in Guidance.

Everyone concerned with schools-- teachers, pupils, parents-- knows that the educational system is a selective agency where, by process of elimination, those who are academically minded are winnowed from those who are not. The time was when schoolmen considered this not only a legitimate and extremely laudable function of the school, but indeed the very end for which schools were established. They viewed their lists of drop-outs with pride and judged the efficiency of a school and the excellence of its standard by the depths to which the academic barometer fell. Today we have a very different view. One of the duties of the teacher-counselor is to watch those places in a class where drop-out may occur and guard against it. In modern education at least, prevention is far better than the best remedy.

The school a selective agency

#### The Elementary or Grade School.\*

Before we can make any study of what helps the elementary counselor may expect through the use of group intelligence tests, we must know first, her pe-

The elementary school

\* Grades up to six



PART I

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culiar needs. In this state the compulsory school attendance law requires the completion of the sixth grade before a pupil under sixteen and over fourteen, may withdraw. Some few states still require less than this. Many require far more. In most cases the elementary school counselor is not confronted with the problem of elimination, until the very close of the elementary period.

Moreover her task is simplified to this extent. With the majority of children she needs to do very little vocational counseling, using the term "vocational" in its technical sense, that is actual help towards choice of vocation. There are very few pupils whom economic necessity forces out of school as soon as the law allows, but with these few she must be prepared to do vocational guidance. Nor does she, unless this elementary teacher-counselor is a sixth grade teacher, need to do extensive educational guidance, in the sense that she must lead a pupil to make proper choice among the schools just ahead of him, or proper selection of courses or subjects. She can concentrate, therefore, almost wholly upon problem cases, that is upon those children who through school mal-adjustment are paving the way to scholastic failure and elimination in later years.

The  
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What helps, then, does an elementary counselor need? Obviously those which will help her to



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locate her problems-- not those problems which ,in every class-room are self-evident-- but those others,not so evident which constitute the problem of a school: the slow, the over-age and retarded, the accelerated,the very bright who,in achievement do not live up to their mental promise, the average pupil who can not seem to make the grade, the dull who are being over-estimated. In all of these lie possibilities of educational catastrophes.

How can the teacher-counselor locate these from the material at her hand: group intelligence scores, age-grade relationships,achievement records? To discover this a study was made of the intelligence scores of approximately 600 children in each of the fourth, sixth,eighth,and twelfth grades of the Boston schools. All of these grades but the twelfth were tested with the National Intelligence Scale,Form A. The group of high school seniors were not tested during the period of investigation but instead, the scores which they had made in the eighth grade four years before were carried forward, lest any question be raised concerning the validity of the test. In every instance the raw scores were converted into intelligence quotients.

The fourth grade was chosen as the place to start this study because it seemed reasonable to conclude that this group had, on the one hand, reasonably

The  
field  
of the  
study.

The  
start  
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study



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well adjusted itself to school procedure so that a test would have sufficient validity, and on the other hand, it was far enough along in grade progress so that certain tendencies to acceleration or retardation might be apparent.

This fourth grade group is a fair sampling of the fourth grade children throughout the city, embracing all racial and social conditions, and all ranges of school opportunity. This last statement means that certain schools were selected because of their reputation for progressive methods, while others were selected because they were not so progressive. In choosing the sixth grade and eighth grade groups care was taken to pick those corresponding to the fourth grade selection. For this reason there is a slight variation in the numbers used, as the table which follows, indicates.

The  
groups  
chosen

Grade IV.....598

Grade VI.....615

Grade VIII.....626

TOTAL.....1839



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Grade IV.....	598
Grade VI.....	615
Grade VIII.....	686
TOTAL.....	1899



CHART I.

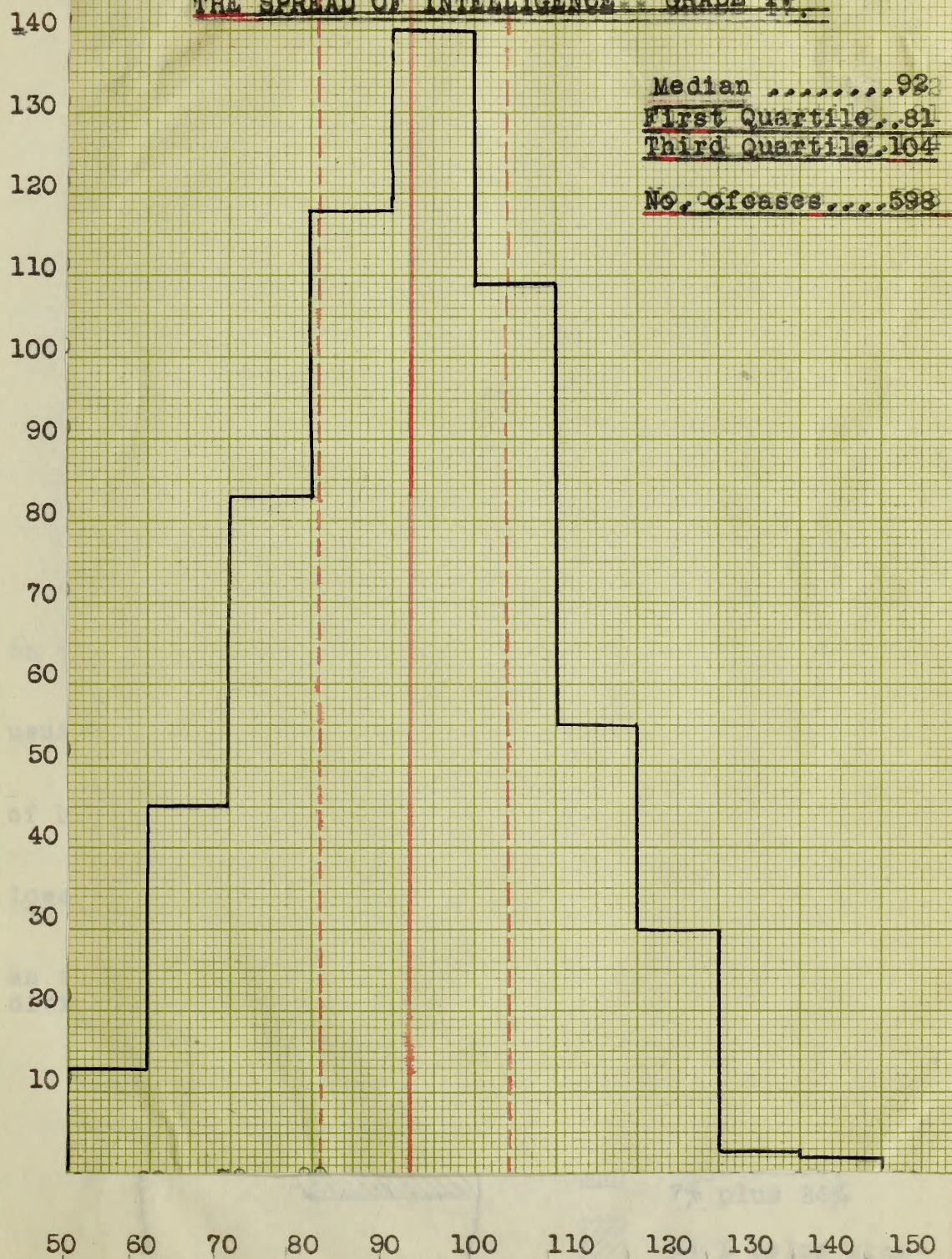
THE SPREAD OF INTELLIGENCE - GRADE IV.



CHART 1.

140

130

120

110

100

90

80

70

60

50

40

30

20

10

20 30 40 50 60 70 80 90 100 110 120 130 140 150



TABLE I. \*\*\*\*\* EXPLAINING CHART I.  
THE SPREAD OF INTELLIGENCE--GRADE IV.

<u>I. Q.</u>	<u>NO.</u>
50--59 .....	12
60--69 .....	45
24% 70--79 .....	84
31% **** 80--89 .....	118 * (54)
90--99 .....	140
100--109 .....	109
110--119 .....	55
120--129 .....	30
130--139 .....	3
140--149 .....	2
	598

Median 92

First Quartile ..81

Third " ..104

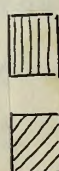
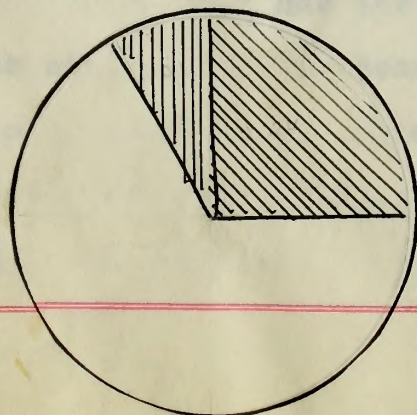
There are certain points of significance in this table which it may be well to show:

1. 24% of this class are below the level usually considered necessary for grammar school graduation.

2. 31% of the class are below the level of high school graduation

3. The middle 50% of the class, on its lower limit, is below the high school level.

4. 10% show ratings so extremely low as to call for a retest to determine error, or for an individual test to serve as a check upon this rating.



31% below  
high school  
7% plus 24%

24% below gram-  
mar school graduation



TABLE I. \*\*\*\* EXPLAINING CHART I.  
THE SPREAD OF INTELLIGENCE--GRADE IV.

NO.	I. Q.
12	80--83
45	80--83
84	70--73
113	80--83
140	80--83
109	100--103
85	110--113
30	120--123
3	130--133
5	140--143

398

Median 93  
First Quartile .. 81  
Third " .. 104

There are certain points of significance

in this table which it may be well to show:

1. 34% of this class are below the level usually considered necessary for grammar school graduation.
2. 31% of the class are below the level of high school graduation.
3. The middle 50% of the class, on the lower limit, is below the high school level.
4. 10% show ratings so extremely low as to call for a retest to determine error, or for an individual test to serve as a check upon this rating.

31% below  
high school  
7% plus 34%

34% below grade  
high school graduation



Findings such as these, however interesting they may be to a teacher as a sidelight upon the mental make-up of her class have, in themselves as unrelated facts, little significance for her in her capacity as counselor. If this statement seems too drastic, it may be modified to this extent. Those who fall in the upper quartile would appear to give promise of ability to do abstract academic work, and consequently of being able to attain high rank in those activities of school or life which require such ability. Those who fall lower in the scale-- even after a retest has checked the validity of the first score-- would seem predisposed to academic failure.

Unfortunately a counselor's task can not be plotted so easily, since other factors enter into it. Not all failures in a grade are found in this lower level; nor all below the median. Not all failures have equal significance, from a guidance point of view, yet the school system applies the same consequences to all. As a result the failures of the fourth grade tend to become the drop-outs of the sixth or eighth year.

Has the teacher-counselor in the fourth or sixth grade any means by which to gauge a child's chances of a complete education-- provided the economic element over which the school has no control does not operate to force the child from school. "Complete" in this sense

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is used to describe the extent of the course of education-- elementary, junior high school, senior high school-- which the community provides. The social causes of elimination, economic necessity, racial traditions, are in addition factors which the teacher-counselor must consider, but which do not properly enter into this problem. Nor, as a discussion somewhat later in this paper shall tend to show, do these operate as agents of elimination in any such wholesale fashion as does the school itself, through its curricula and its loyalty to a strictly academic standard.

The  
causes  
of  
elimination.

The largest number of children who leave school are those who can not do its work. Shall intelligence be the sole gauge of these, the single index that a teacher-counselor can use as a guide? The answer to this can be found by probing into the age-grade-intelligence relationship.

Just here it may be well to call attention to the fact that in the studies of age in a grade, retardation and acceleration, a coarse group handling has been followed, and no effort has been made to take into consideration such refinements as the length of school attendance of atypical students. The reason is this. Throughout this study effort has been made to use only those instruments that the average teacher can use readily. In the last analysis the chief value that an age-grade study has for the counselor

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operate as agents of elimination in any such wholesale fashion as does the school itself, through its curricula and its loyalty to a strictly academic standard.

The largest number of children who

leave school are those who can not do the work. Shall it

intelligence be the sole gauge of these, the single index that a teacher-counselor can use as a guide? The answer to this can be found by probing into the age-grade-intelligence relationship.

That here it may be well to call at-

tention to the fact that in the studies of age in grade, retardation and acceleration, a course group handling has

been followed, and no effort has been made to take into con- sideration such refinements as the length of/typical stu-

dents. The reason is this. Throughout this study effort has been made to use only those instruments that the aver- age teacher can use readily. In the last analysis the

chief value that an age-grade study has for the counselor



is the help it gives her in locating problem cases. The coarse grouping which the counselor can make readily and in little time, gives her this information, in a satisfactorily and reasonably accurate way. Therefore, this simpler and cruder method of determining acceleration and retardation has been used throughout.

An examination of the chart upon page 27 will disclose that in the 598 cases of fourth grade children considered, a variation of age was found, and that this variation covered a range of seven years, from seven as the lower limit of the scale to fourteen as the upper one. The median was a nine years, and but 40% of the class was found at it. The other 60%, either accelerated or retarded, were distributed as follows:

Accelerated.....20%

2 years..... $\frac{1}{2}\%$   
1 " ..... $19\frac{1}{2}\%$

Greatest acceleration.....2 years

Retarded .....40%

5 years)  
4 " } ....4 %  
3 " }  
2 " .....9%  
1 " ..... $27\frac{1}{2}\%$

Total retardation or acceleration.60%

One year either side of median....86%



is the help it gives her in locating problem cases. The course grouping which the counselor can make readily and in little time, gives her this information, in a satisfactory and reasonably accurate way. Therefore, this simpler and cruder method of determining acceleration and retardation has been used throughout.

An examination of the chart upon page 27 will disclose that in the 598 cases of fourth grade children considered, a variation of age was found, and that this variation covered a range of seven years, from seven as the lower limit of the scale to fourteen as the upper one. The median was a nine years, and but 40% of the class was found at it. The other 60%, either accelerated or retarded, were distributed as follows:

#### Accelerated.....60%

2 years.....1%	1
1 ".....19%	1

Greatest acceleration.....2 years

#### Retarded.....40%

5 years.....1%	1
4 ".....4%	4
3 ".....3%	3
2 ".....2%	2
1 ".....2%	1

Total retardation or acceleration.....60%

One year either side of median.....60%



TABLE II.\*\*EXPLAINING CHARTS II AND III.  
DISTRIBUTION OF AGES.

<u>Years</u>	<u>Frequency.</u>
7.....	3
8.....	114
9.....	266
10.....	138
11.....	57
12.....	13
13.....	6
14.....	1
Total...598	

The Age Groups.

Seven Year Group

I.Q.

109----120-----129

Median.....129

Above grade median..plus 37 points

Eight Year Group.

I.Q.      Frequency

50--59.....	1
60--69.....	1
70--79.....	7
80--89.....	9
90--99.....	20
100-109.....	43
110-119.....	17
120-129.....	13
130-139.....	2
140-149.....	1
Total 114	

Median.....104

Above median for grade..plus 12 points



TABLE II. \*EXPLAINING CHARTS II AND III.  
DISTRIBUTION OF AGES.

Years	Frequency
7.....	3
8.....	114
9.....	388
10.....	138
11.....	57
12.....	13
13.....	8
14.....	1
Total.....	688

The Age Groups.

Seven Year Group

I.Q. 100-120-----128

Median.....128  
Above grade median.. plus 37 points

Eight Year Group.

I.Q. Frequency

50-59.....	1
60-69.....	1
70-79.....	7
80-89.....	9
90-99.....	20
100-109.....	43
110-119.....	17
120-129.....	13
130-139.....	3
140-149.....	1
Total.....	115

Median.....104  
Above median for grade.. plus 18 points



Nine Year Group

<u>I.Q.</u>	<u>Frequency</u>
50--59.....	1
60--69.....	3
70--79.....	27
80--89.....	55
90--99.....	77
100-109.....	53
110-119.....	33
120-129.....	16
130-139.....	1
140-149.....	0
<u>Total. 266</u>	

Median....95

Above median for grade -plus 3

Ten Year Group

<u>I.Q.</u>	<u>Frequency</u>
50--59.....	0
60--69.....	19
70--79.....	28
80--89.....	44
90--99.....	31
100-109.....	14
110-119.....	2
120-129.....	0
130-139.....	0
<u>Total 138</u>	

Median.....85

Below median for grade -minus 7

Eleven Year Group

<u>I.Q.</u>	<u>Frequency</u>
50--59.....	5
60--69.....	13
70--79.....	16
80--89.....	10
90--99.....	12
100-109.....	1
<u>Total..57</u>	



Five Year Group

I.Q. Frequency

50--59	1
60--69	3
70--79	27
80--89	25
90--99	77
100-109	63
110-119	33
120-129	18
130-139	1
140-149	0
Total	308

Median.....55

Above median for grade - plus 3

Ten Year Group

I.Q. Frequency

50--59	0
60--69	12
70--79	38
80--89	44
90--99	27
100-109	14
110-119	3
120-129	0
130-139	0
Total	138

Median.....55

Below median for grade - minus 7

Fifteen Year Group

I.Q. Frequency

50--59	5
60--69	15
70--79	13
80--89	10
90--99	13
100-109	1
Total	57



Median.....76

Below median for grade.minus 16

Twelve Year Group

I.Q.      Frequency

50--59.....3

60--69.....5

70--79.....5

Total      13

Median.....66

Below median for grade--minus 26

Thirteen Year Group

I.Q.      Frequency

50--59.....4

60--69.....2

Total      6

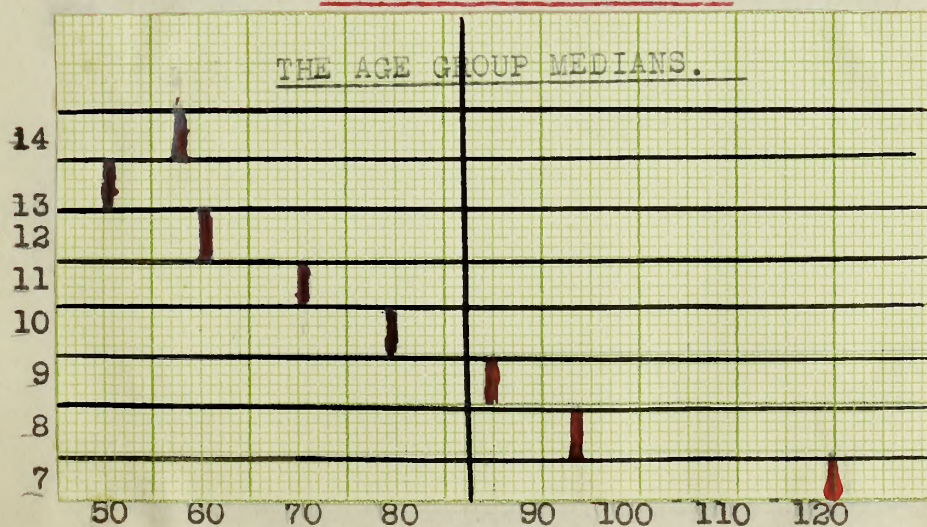
Median.....56

Below median for grade.. minus 36

\*

CHART II.

THE AGE GROUP MEDIANS



\* Group median



Median.....78  
Below median for grade minus 18

Twelve Year Group

I.Q. Frequency
50--59.....3
60--69.....2
70--79.....2
Total 7

Median.....68  
Below median for grade--minus 28

Thirteen Year Group

I.Q. Frequency
50--59.....4
60--69.....2
Total 6

Median.....58  
Below median for grade.. minus 38

CHART II.

THE AGE GROUP MEDIANS

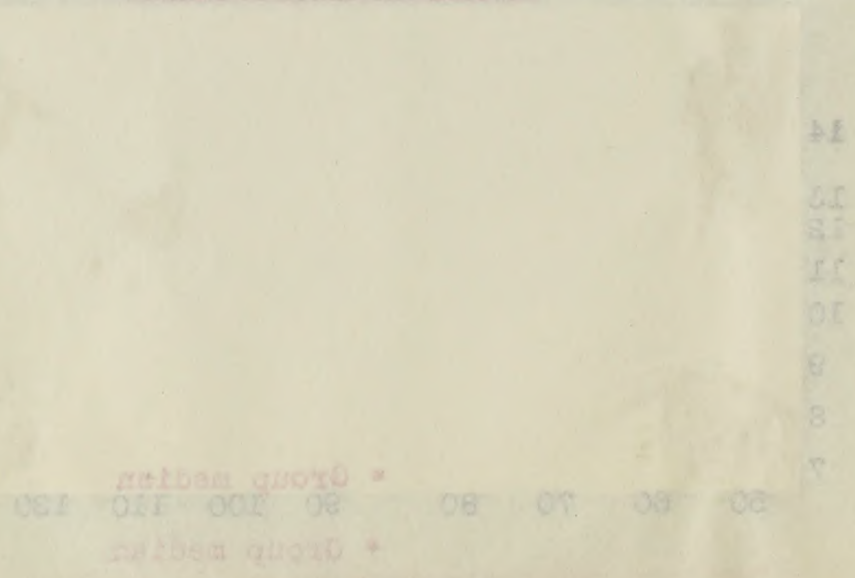




CHART III  
THE DISTRIBUTION OF AGES

GRADE IV

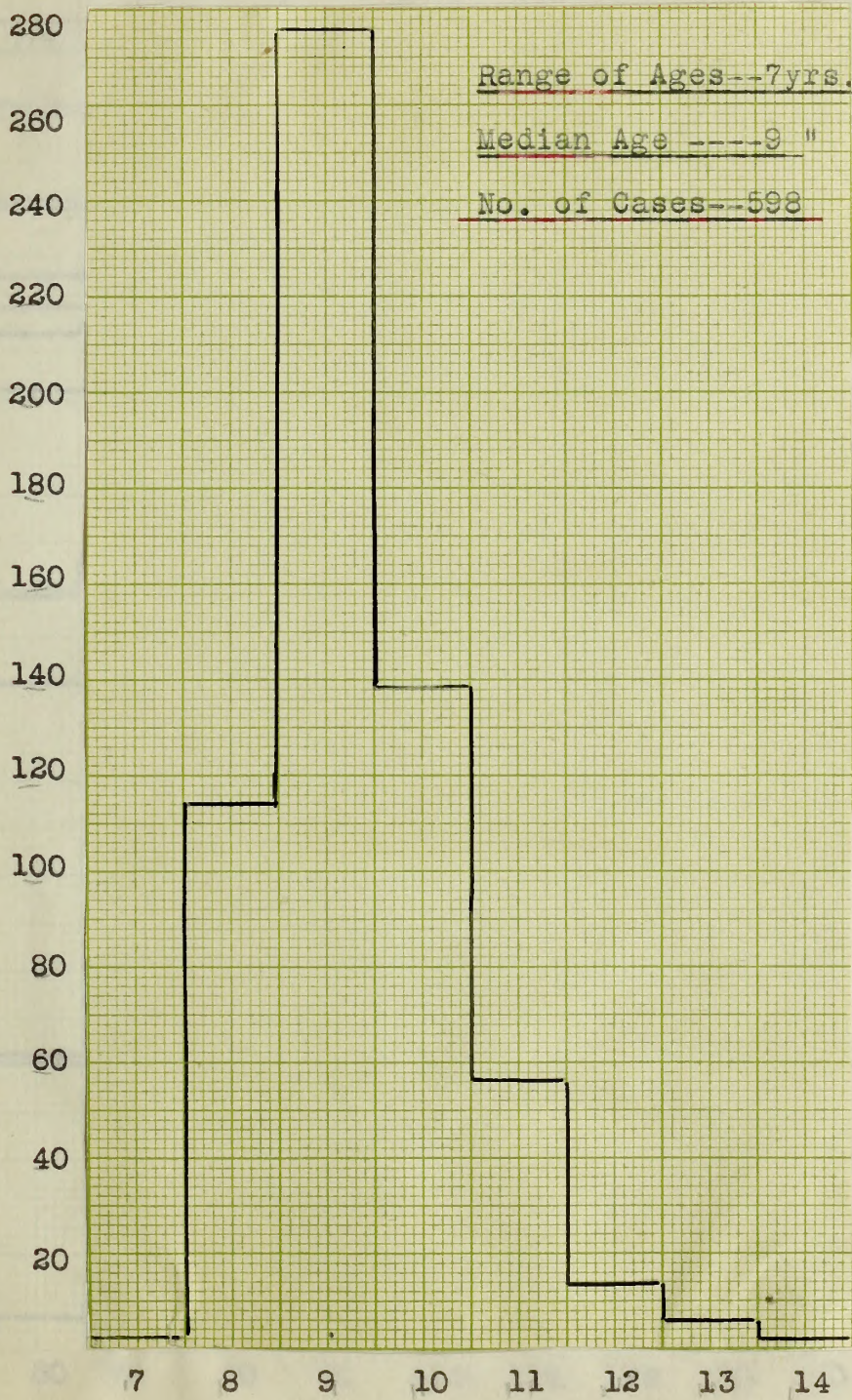




CHART III  
THE DISTRIBUTION OF AGES

GRADE IV

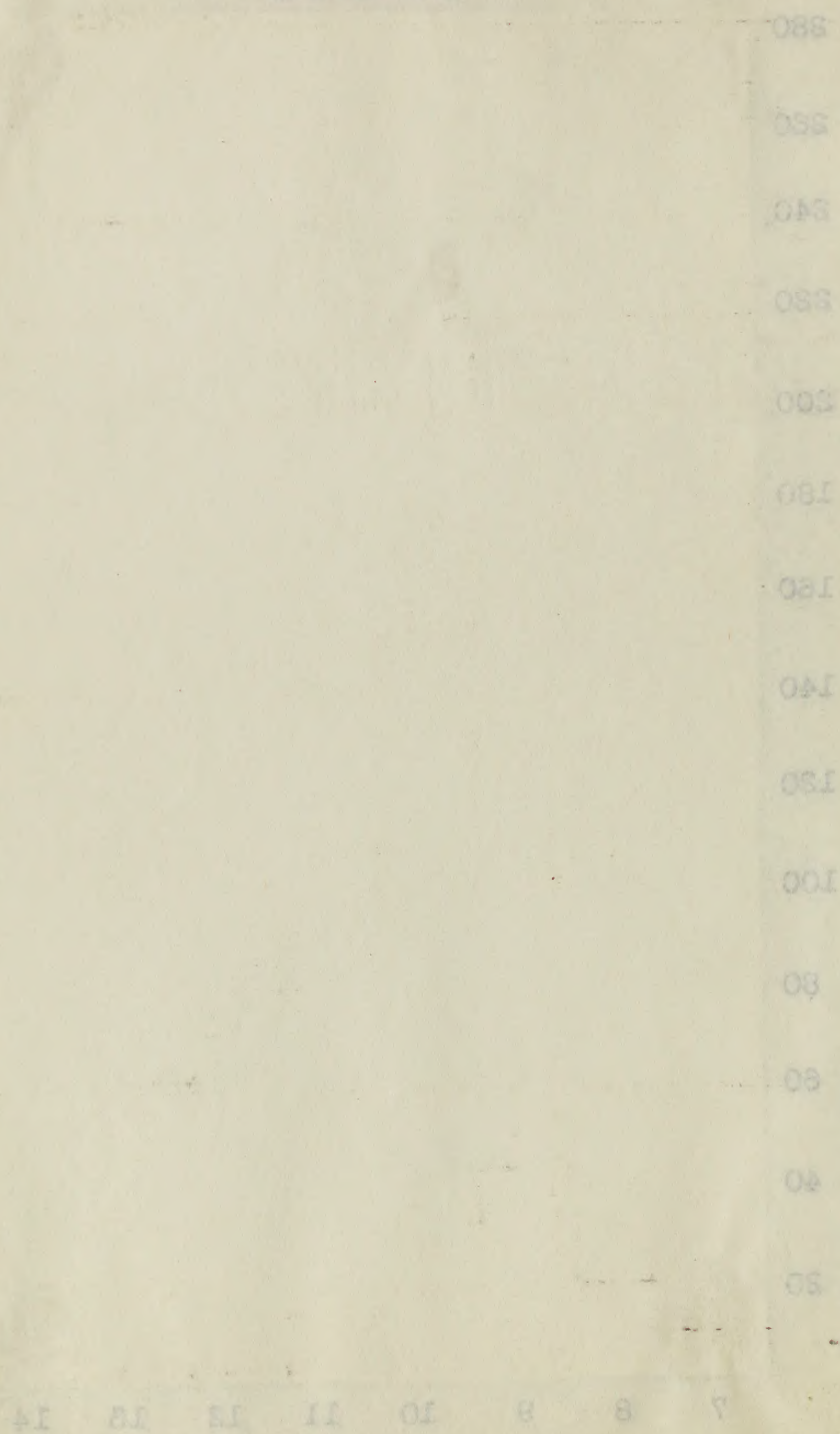
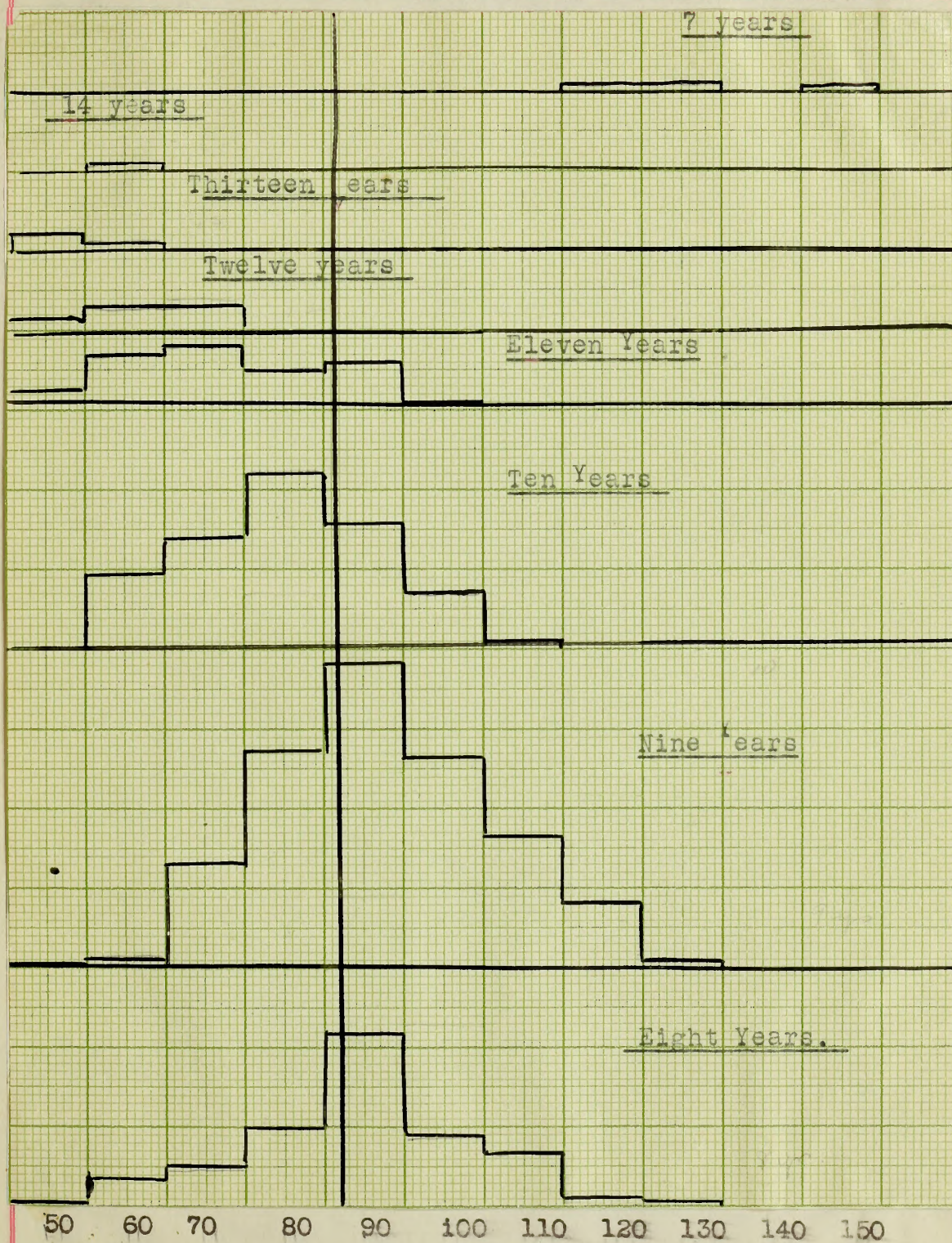




CHART IVA SURFACE DISTRIBUTION OF AGE GROUPS FOR GRADE IV.



# CHART IV

A SURFACE DISTRIBUTION OF AGE GROUPS FOR GRADE IV.

50 60 70 80 90 100 110 120 130 140 150



It is obviously unscientific to make any generalization from these facts until it is possible to compare them with those revealed by a study of the sixth and the eighth grades. Before passing on however certain facts are worth noting:

1. There is a wide range of ability between the extremes of the age groups. The lowest--and oldest-- group is 36 points below the median intelligence of the median age. The highest is 37 points above the same median, making the extreme ranges of the median of the age groups 73 points.

2.

In the eight year old, or one year accelerated group, there is a group of 13% with I.Q.'s below 90. One of two things is true: either this group was unwisely accelerated, or else they were incorrectly tested. It is easy to discover which of these is true by giving a retest, group or individual, although the latter would be preferable.

3.

With such a distribution, in this grade at least, it is possible to put a finger upon those who will present problems in guidance, and to watch them closely.



It is obviously unscientific to make any generalization from these facts until it is possible to compare them with those revealed by a study of the sixth and the eighth grades. Before passing on however certain facts are worth noting:

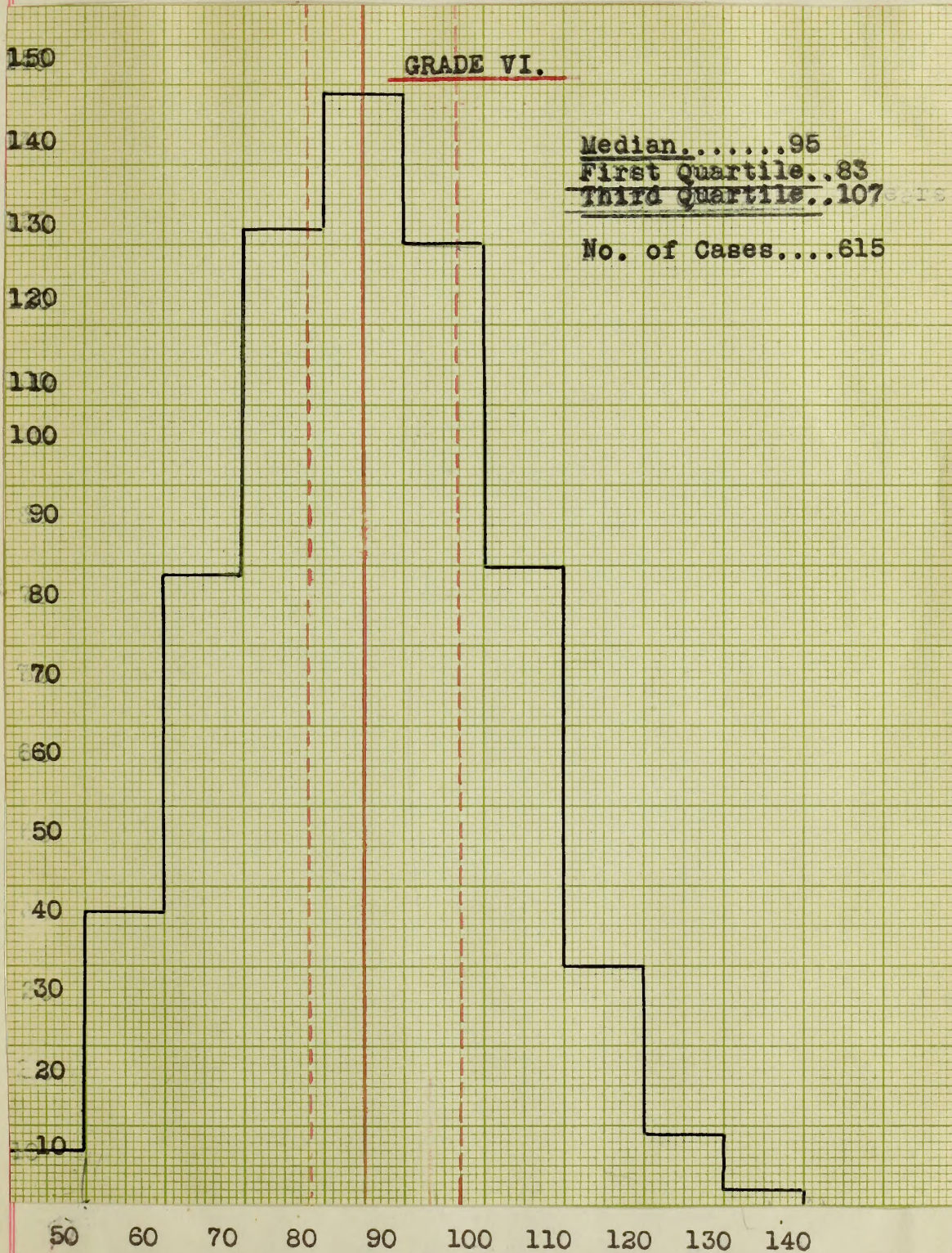
1. There is a wide range of ability between the extremes of the age groups. The lowest--and oldest--group is 38 points below the median intelligence of the median age. The highest is 37 points above the same median, making the extreme range of the median age groups 75 points.

2. In the eight year old, or one year accelerated group, there is a group of 13% with I.Q.'s below 80. One of two things is true: either this group was unwise accelerated, or else they were incorrectly tested. It is easy to discover which of these is true by giving a retest. Group or individual, although the latter would be preferable.

3. With such a distribution in this grade at least, it is possible to put a finger upon those who will present problems in guidance, and to watch them closely.



## CHART V

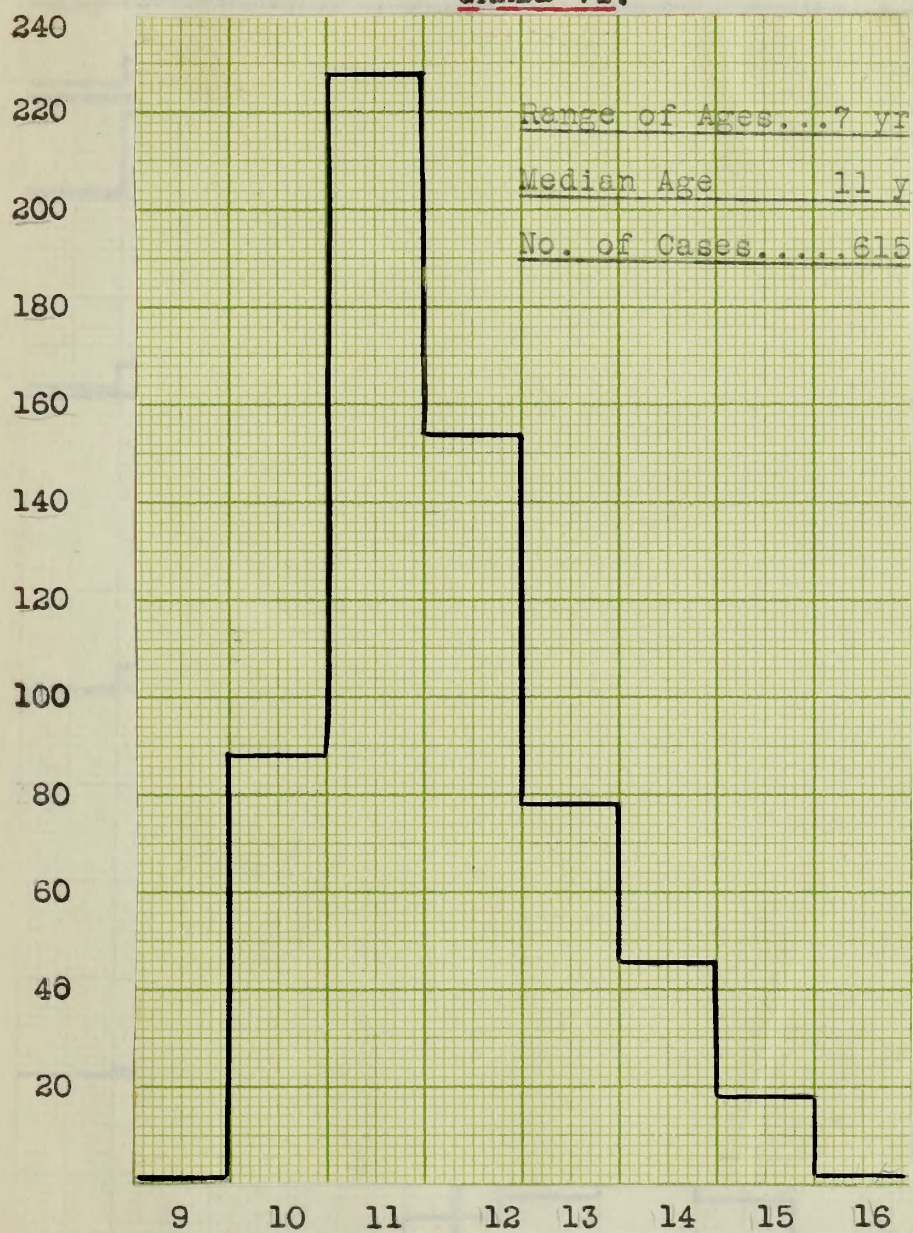
THE DISTRIBUTION OF INTELLIGENCE



THE DISTRIBUTION OF INTELLIGENCE

80 80 70 60 50 40 30 20 10 0



CHART VITHE DISTRIBUTION OF AGES.GRADE VI.



# CHART VI

## THE DISTRIBUTION OF AGES

### GRADE VI

240

220

200

180

160

140

120

100

80

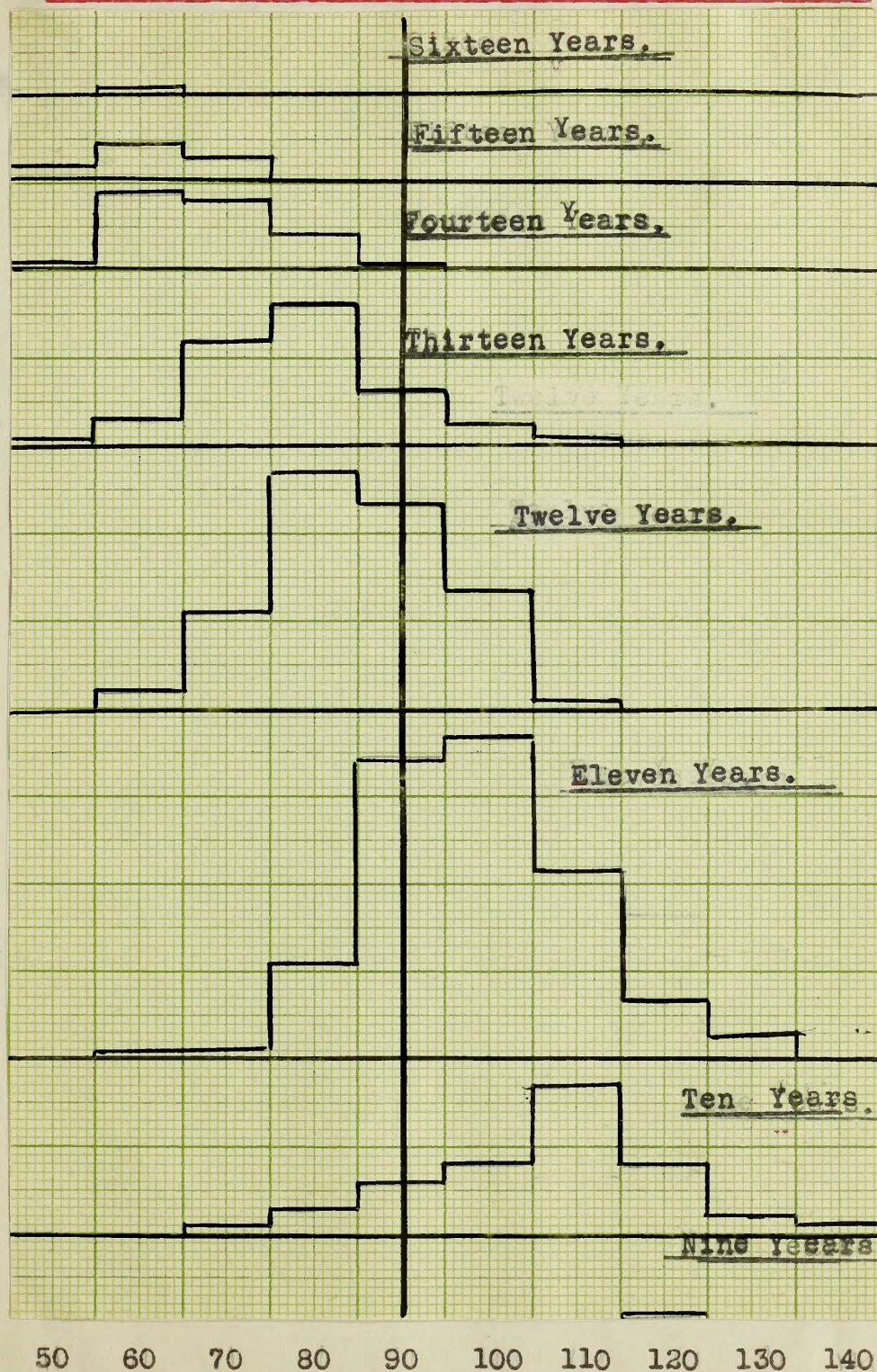
60

40

20

9 10 11 12 13 14 15 16



CHART VIIA SURFACE DISTRIBUTION OF AGE GROUPS GRADE VI



A SURFACE DISTRIBUTION OF AGE GROUPS GRADE VI

50 60 70 80 90 100 110 120 130 140



CHART VIII  
THE AGE GROUP MEDIANS.

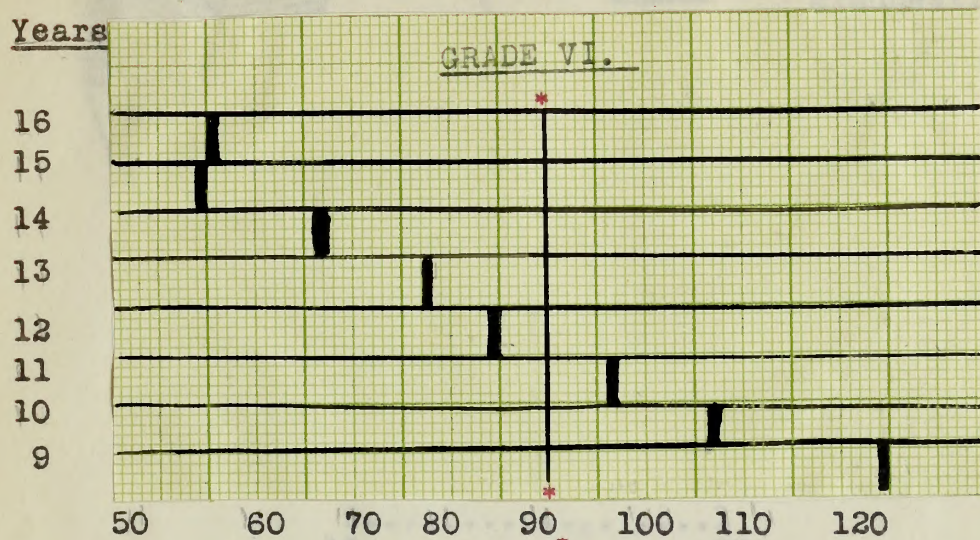


TABLE III. \*\*\*\*\* EXPLAINING CHART V.  
THE SPREAD OF INTELLIGENCE GRADE VI.

<u>I.Q.</u>	<u>FREQUENCY</u>
50--59.....	7
60--69.....	37
70--79.....	69
80--89.....	122
90--99.....	139
100-109.....	120
110-119.....	80
120-129.....	30
130-139.....	9
140-149.....	2
Total	615

Median.....95

First Quartile....83

Third Quartile...107



CHART VIII  
THE AGE GROUP MEDIAN

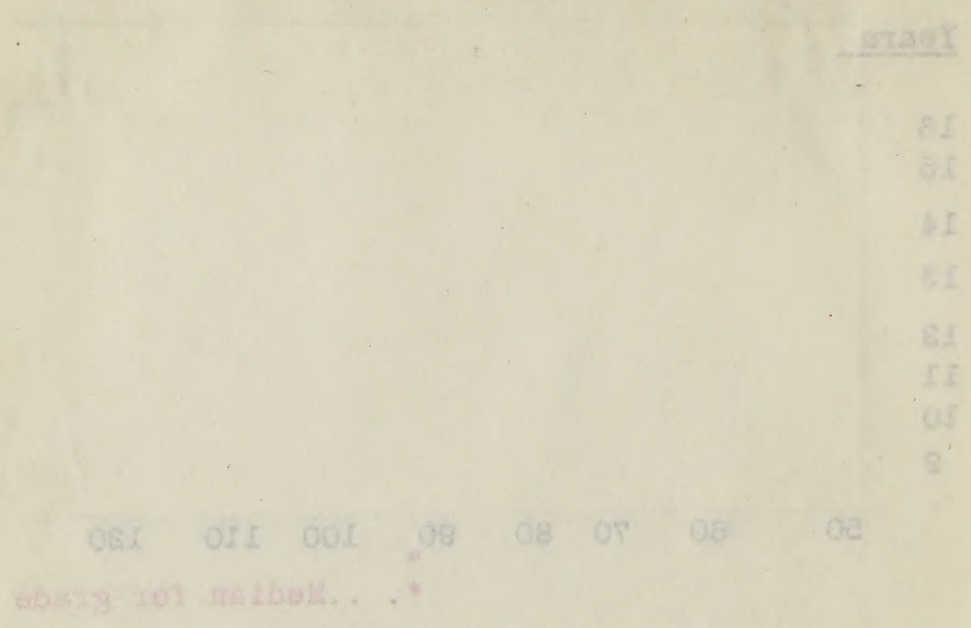
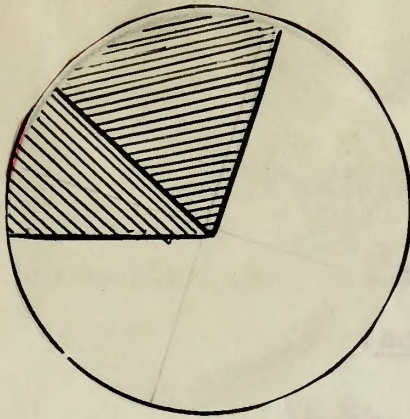


TABLE III. .... EXPLAINING CHART V.  
THE SPREAD OF INTELLIGENCE GRADE VI.

<u>FREQUENCY</u>	<u>I.Q.</u>
7	50--55
37	55--60
83	60--65
123	65--70
139	70--75
130	75--80
80	80--85
38	85--90
30	90--95
9	95--100
3	100--105
<u>Total 515</u>	
Median.....83	
First quartile....83	
Third quartile....107	







 29% below high school graduation  
 18% plus 11%  
 18% below grammar school graduation

TABLE IV.\*\*\*EXPLAINING CHARTS VI\*VII\*VIII

THE DISTRIBUTION OF AGES.

<u>Year</u>	<u>Frequency.</u>
9.....	1
10.....	.88
11.....	.228
12.....	.154
13.....	.79
14.....	.45
15.....	.19
16.....	.1
Total	615

Range of ages....7 years

Median age.....11years

At median.....36% of group

Acceleration .....14%

2 years .....1/5%

1 " .....13 4/5%

Greatest acceleration..2 years

Retardation .....50%

5 years.....1/5%

4 " .....2

3 " .....7 4/5

2 " .....14

1 " .....26

Greatest retardation..5 years



18% below high school  
graduation  
18% plus 11%  
18% below grammar  
school graduation

TABLE IV.\*\*\*EXPLAINING CHARTS VI-VII-VIII  
THE DISTRIBUTION OF AGES.

Year	Frequency
8	1
10	88
11	328
12	154
13	73
14	45
15	13
16	1
Total	613
Range of ages...	7 years
Median age...	11 years
At median...	36% of group
Acceleration...	14%
3 years	1/5%
"	13 4/5%
Greatest acceleration...	3 years
Retardation...	50%
5 years	1/5%
"	3
"	4/5
"	14
"	38
Greatest retardation...	5 years



### The Age Groups.

#### The Nine Year Group.

129.....1  
Above median for grade..plus 34 points

#### The Ten Year Group.

<u>I. Q.</u>	<u>Frequency</u>
70--79.....	1
80--89.....	5
90--99.....	11
100--109.....	16
110--119.....	33
120--129.....	16
130--139.....	4
140--149.....	2
<b>Total</b>	<b>88</b>

Median.....112  
Above median for grade..plus 17 points

#### The Eleven Year Group.

<u>I. Q.</u>	<u>Frequency</u>
60--69.....	1
70--79.....	2
80--89.....	22
90--99.....	69
100--109.....	73
110--119.....	43
120--129.....	13
130--139.....	5
<b>Total</b>	<b>228</b>

Median.....102  
Above median for grade..plus 7 points

#### The Twelve Year Group.

<u>I. Q.</u>	<u>Frequency</u>
60--69.....	3
70--79.....	21
80--89.....	55
90--99.....	47
100--109.....	26
110--119.....	2
<b>Total</b>	<b>154</b>



The Age Group.The Nine Year Group.

138.....1  
Above median for grade.. plus 34 points

The Ten Year Group.

I. G.	Frequency
70-75	1
80-85	3
90-95	11
100-105	16
110-115	33
120-125	18
130-135	4
140-145	2
Total	88

Median.....112  
Above median for grade.. plus 17 points

The Eleven Year Group.

I. G.	Frequency
60-65	1
70-75	3
80-85	23
90-95	33
100-105	73
110-115	43
120-125	13
130-135	5
Total	228

Median.....108  
Above median for grade.. plus 7 points

The Twelve Year Group.

I. G.	Frequency
60-65	3
70-75	31
80-85	55
90-95	47
100-105	33
110-115	2
Total	161



Median.....89

Below median for grade..minus 6

### The Thirteen Year Group

I. Q.                      Frequency

50--59.....	1
60--69.....	5
70--79.....	24
80--89.....	31
90--99.....	11
100--109.....	5
110--119.....	2
<b>Total</b>	<b>79</b>

Median.....83

Below median for grade--minus 12

### The Fourteen Year Group

I. Q.                      Frequency

50--59.....	2
60--69.....	17
70--79.....	16
80--89.....	9
90--99.....	1
<b>Total</b>	<b>45</b>

Median .....72

Below median for grade..minus 13

### The Fifteen Year Group

I. Q.                      Frequency

50--59.....	4
60--69.....	10
70--79.....	5
<b>Total</b>	<b>19</b>

Median.....59

Below median for grade..minus 35

Below median for grade.. minus 3  
Median.....1783

The Thirteen Year Group

<u>I. Q.</u>	<u>Frequency</u>
80--82	1
80--82	5
70--72	24
80--82	31
90--92	11
100--102	5
110--112	2
<u>Total</u>	<u>79</u>

Below median for grade--minus 15  
Median.....87

The Fourteen Year Group

<u>I. Q.</u>	<u>Frequency</u>
80--82	2
80--82	17
70--72	18
80--82	9
90--92	1
<u>Total</u>	<u>47</u>

Below median for grade.. minus 15  
Median.....72

The Fifteen Year Group

<u>I. Q.</u>	<u>Frequency</u>
80--82	4
80--82	10
70--72	5
<u>Total</u>	<u>19</u>

Below median for grade.. minus 35  
Median.....38



### The Sixteen Year Group.

#### I.Q. Frequency

60.....1

Median .....60

Below median for grade --minus 35

Before making any comparison to discover what significance for counseling have the facts revealed in these grade studies, it is well to note that in Massachusetts this group is well within the compulsory school age. Whatever variations occur within it are, therefore, the results not of school elimination, but of school adjustment.

A comparison of the grades

The first comparison made is that of the surfaces of distribution of intelligence. A comparison of the charts upon pages 19 and 30 shows but little change can be noted in the general shape of the curve, all though a slight loss can be noted at the lower extremity of the sixth grade group.

The surface distribution of intelligence

#### I.Q.

#### Grade IV.

#### Grade VI.

50--59

12

7

60--69

45

37

70--79

84

69

141

113

An answer to the question-- What becomes of those pupils who disappeared from the lower ranges in years intervening between grade IV and grade VI?--is

# The Sixteen Year Group

I.Q. Frequency

60.....1

Median ..... 60  
Below median for grade -- minus 25

Before making any comparison to dis-  
cover what significance for counseling have the facts re-  
vealed in these grade studies, it is well to note that in  
Massachusetts this group is well within the compulsory  
school age. Whatever variations occur within it are, there-  
fore, the result not of school elimination, but of school  
adjustment.

The first comparison made is that of  
the surfaces of distribution of intelligence. A comparison  
of the charts upon pages 18 and 30 shows but little change  
can be noted in the general shape of the curve, although  
a slight loss can be noted at the lower extremity of the  
sixth grade group.

I.Q.	Grade IV.	Grade VI.
80--85	12	7
80--88	45	37
70--75	88	39
	<u>144</u>	<u>123</u>

As answer to the question--What be-  
comes of those pupils who disappeared from the lower range  
in years intervening between grade IV and grade VI--is



that the children are not lost to the school system. They have, however, been removed from the regular graded classes to the so-called "special" class, where they may be given such training as they can take, in the way and at the rate they can best take it.

As a natural consequence of this elimination the selective function of the school is shown by an advance of the median:

Grade IV.....92  
Grade VI.....95

and of the quartiles:

<u>First Quartile</u>	<u>Third Quartile</u>
Grade IV.....81	Grade IV....104
Grade VI.....83	Grade VI....107

It will be noted that the lowest fourth of the class is below that needed for high school graduation. The percentages below 80 and 85 respectively have varied slightly:

<u>I.Q.</u>	<u>Grade IV</u>	<u>Grade VI.</u>	<u>Variation</u>
80	24%	18%	-6
85	31%	29%	-2

On the other hand, within the age groups, the range of age from youngest to oldest, that is from 7 to 14, and from 9 to 16, remains constant at seven years. The group found at the age median shows a slight variation, decreasing from 40% to 36%. The accelerated and retarded groups show certain tendencies: the accelerates

The  
Age  
Groups

that the children are not lost to the school system. They have, however, been removed from the regular graded classes to the so-called "special" class, where they may be given such training as they can take, in the way and at the rate they can best take it.

As a natural consequence of this elimination the selective function of the school is shown by an advance of the median:

Grade IV.....92  
Grade VI.....93

and of the quartiles:

First Quartile	Third Quartile
Grade IV.....91	Grade IV.....104
Grade VI.....93	Grade VI.....107

It will be noted that the lowest fourth of the class is below that needed for high school graduation. The percentages below 80 and 85 respectively have varied slightly:

I. Q.	Grade IV	Grade VI	Variation
80	34%	18%	-8
85	31%	28%	-2

On the other hand, within the age groups, the range of age from youngest to oldest, that is from 7 to 14, and from 9 to 16, remains constant at seven years. The group found at the age median shows a slight variation, decreasing from 40% to 38%. The accelerated and retarded groups show certain tendencies: the accelerated



decrease, the retarded increase.

### ACCELERATION

	<u>Grade IV</u>	<u>Grade VI.</u>	<u>VAR.</u>
<u>Totals</u>	20%	14%	-6%
		1/5%	.4%
2 years	1/2%		
1 "	19 1/2%	13 4/5%	5.6 %

### RETARDATION

	<u>Grade IV</u>	<u>Grade VI</u>	<u>VAR.</u>
<u>Totals.</u>	40%	50%	10%
1 year	27	27%	
2 "	9	4%	
3 " )		7 4/5%	
4 " )	4	2%	
5 " )		1/5%	

One quite noticeable fact is found in both groups. There are upon the median or in the one year accelerants a number of children who are placed by intelligence in the lower levels.

### Accelerated.

	<u>Grade IV</u>	<u>Grade VI.</u>
Median age		
but		
I.Q. 90 or less	14%	4%
One year		
accelerated		
but		
I.Q. 90 or less	3%	1%

On the contrary there are in the retarded group students with a rating of 100 or better.

### Rgtarded

	<u>Grade IV</u>	<u>Grade VI</u>
1 year	3 %	4%
2 years	1/10%	1%

decrease, the retarded increase.

<u>ACCELERATION</u>			
<u>Grade IV</u>	<u>Grade VI</u>	<u>VAR.</u>	
30%	14%	-2%	
1/3%	1/3%	4%	
12 1/3%	12 1/3%	2.6%	

<u>RETARDATION</u>			
<u>Grade IV</u>	<u>Grade VI</u>	<u>VAR.</u>	
40%	50%	10%	
37	37%		1 year
3	4%		2 "
	7 1/3%		3 "
4	3%		4 "
	1/3%		5 "

One quite noticeable fact is found

in both groups. There are upon the median or in the one

year accelerants a number of children who are placed by in-

teligence in the lower levels.

<u>Accelerated</u>		<u>Grade IV</u>	<u>Grade VI</u>	<u>Median age</u>
				but
		1.9. 50 or less 14%	4%	
				One year
		accelerated		
		but		
		1.9. 50 or less 3%	1%	

On the contrary there are in the re-

tarded group students with a rating of 100 or better.

<u>Retarded</u>		<u>Grade IV</u>	<u>Grade VI</u>	
		3%	4%	1 year
		1/10%	1%	2 years

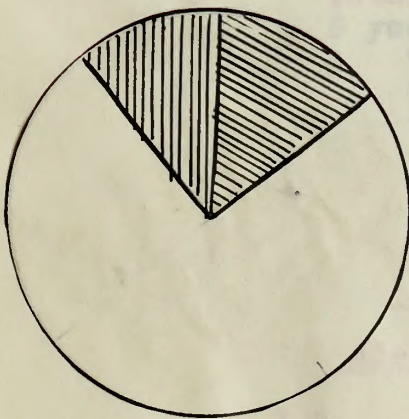




How significant any of these comparisons may be can best be discovered by adding a third group-- the 626 eighth grade students.

TABLE IV\*\*EXPLAINING CHART IX.  
THE SPREAD OF INTELLIGENCE - GRADE VIII.

	<u>I.Q.</u>	<u>Frequency</u>
	50--59 .....	0
	60--69 .....	12
13%	70--79 .....	70
**	80--89 .....	133
25%*****	90--99 .....	177
	100--109 .....	153
	110--119 .....	54
	120--129 .....	23
	130--139 .....	2
	140--149 .....	2
	<u>Total</u>	<u>626</u>

Total Median .....96  
3 yrs First Quartile.85  
1 Third Quartile.103



 25% below high school  
(13% plus 12%)  
 13% below grammar  
school.

How significant any of these comparisons may be can best be discovered by adding a third group-- the 838 eighth

Grade students.

TABLE V--EXPLAINING CHART IX.  
THE SPREAD OF INTELLIGENCE - GRADE VIII.

Frequency	I.Q.
50--55	134
55--60	234
60--65	
65--70	
70--75	
75--80	
80--85	
85--90	
90--95	
95--100	
100--105	
105--110	
110--115	
115--120	
120--125	
125--130	
130--135	
135--140	
Total	538
Median	105
First Quartile	85
Third Quartile	105

55% below high school  
(134 plus 134)

134 below grammar  
school.



TABLE VI\*\* EXPLAINING CHARTS X\*XI\*XII  
THE SPREAD OF AGES.

<u>Age.</u>	<u>Frequency.</u>
11.....	2
12.....	80
13.....	231
14.....	166
15.....	100
16.....	40
17.....	5
18.....	2
<u>Total 626</u>	

Range of ages.....7 years

Median.....13 Years

Acceleration

Total.....13%  
 2 years.....1 1/3%  
 1 " .....12.2/3%

Greatest acceleration...2 years

Retardation

Total.....50%  
 5 years.....1 1/3%  
 4 " .....2/3%  
 3 " .....7%  
 2 " .....16 %  
 1 " .....26 %

THE AGE GROUPS.

The Eleven Year Group.

I.Q.                      Frequency

108.....1  
 144.....1  
Total....2

Median.....126

Above median for grade....30 points

# TABLE VI\*\* EXPLAINING CHARTS I-XI-XII

## THE HIGHER AGE GROUP

Age	Frequency
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18

Total 138

Range of ages..... 7 years

Median..... 13 years

## Acceleration

Acceleration	Frequency
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100
101	101
102	102
103	103
104	104
105	105
106	106
107	107
108	108
109	109
110	110
111	111
112	112
113	113
114	114
115	115
116	116
117	117
118	118
119	119
120	120
121	121
122	122
123	123
124	124
125	125
126	126
127	127
128	128
129	129
130	130
131	131
132	132
133	133
134	134
135	135
136	136
137	137
138	138
139	139
140	140
141	141
142	142
143	143
144	144
145	145
146	146
147	147
148	148
149	149
150	150
151	151
152	152
153	153
154	154
155	155
156	156
157	157
158	158
159	159
160	160
161	161
162	162
163	163
164	164
165	165
166	166
167	167
168	168
169	169
170	170
171	171
172	172
173	173
174	174
175	175
176	176
177	177
178	178
179	179
180	180
181	181
182	182
183	183
184	184
185	185
186	186
187	187
188	188
189	189
190	190
191	191
192	192
193	193
194	194
195	195
196	196
197	197
198	198
199	199
200	200

Greatest acceleration..... 5 years

## Retardation

Retardation	Frequency
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

## THE AGE GROUPS

### The Higher Age Group

### Frequency

108..... 1

144..... 1

Total..... 2

Median..... 128

Above median for grade..... 50 points



The Twelve Year Group

<u>I.Q.</u>	<u>Frequency.</u>
80--89.....	7
90--99.....	13
100-109.....	30
110-119.....	21
120-129.....	6
130-139.....	2
140-149.....	1
Total	80

Median.....108

Above median for grade...12 points

The Thirteen Year Group.

<u>I.Q.</u>	<u>Frequency</u>
70--79.....	7
80--89.....	38
90--99.....	71
100-109.....	74
110-119.....	26
120-129.....	15
Total	231

Median.....99

Above median for grade...3 points

The Fourteen Year Group.

<u>I.Q.</u>	<u>Frequency</u>
70--79.....	15
80--89.....	45
90--99.....	68
100-109.....	31
110-119.....	5
120-129.....	2
Total	166

Median.....93

Below median for grade....3 points

The Twelve Year Group.I.Q.      Frequency

70-79	7
80-89	13
90-99	30
100-109	31
110-119	8
120-129	8
130-139	1
<u>Total</u>	<u>98</u>

Median.....108  
 Above median for grade...12 points

The Thirteen Year Group.I.Q.      Frequency

70-79	7
80-89	38
90-99	71
100-109	74
110-119	38
120-129	18
<u>Total</u>	<u>251</u>

Median.....99  
 Above median for grade...3 points

The Fourteen Year Group.I.Q.      Frequency

70-79	15
80-89	45
90-99	88
100-109	31
110-119	5
120-129	3
<u>Total</u>	<u>187</u>

Median.....83  
 Below median for grade...3 points



The Fifteen Year Group

<u>I.Q.</u>	<u>Frequency</u>
60--69.....	6
70--79.....	21
80--89.....	34
90--99.....	21
100-109.....	16
110-119.....	2
<u>Total 100</u>	

Median.....85

Below median of grade..11 points

The Sixteen Year Group

<u>I.Q.</u>	<u>Frequency</u>
60--69.....	5
70--79 .....	22
80--89 .....	8
90--99 .....	4
100-109 .....	1
<u>Total 40</u>	

Median.....78.

Below4median of the grade..18

The Seventeen Year Group

<u>I.Q.</u>	<u>Frequency</u>
60--69 .....	1
70--79 .....	3
80--89 .....	1
<u>Total 5</u>	

Median.....72

Below median of the grade..24

The Eighteen Year Group

<u>I.Q.</u>	<u>Frequency</u>
70--79	2

Median.....72

Below median for grade....24

The Fifteen Year Group

<u>I.Q.</u>	<u>Frequency</u>
60--69	8
70--79	21
80--89	34
90--99	31
100-109	18
110-119	2
<u>Total</u>	<u>104</u>

Median.....85  
Below median of grade..11 points

The Sixteen Year Group

<u>I.Q.</u>	<u>Frequency</u>
60--69	5
70--79	23
80--89	8
90--99	4
100-109	1
<u>Total</u>	<u>40</u>

Median.....78  
Below median of the grade..18

The Seventeen Year Group

<u>I.Q.</u>	<u>Frequency</u>
60--69	1
70--79	3
80--89	1
<u>Total</u>	<u>5</u>

Median.....78  
Below median of the grade..34

The Eighteen Year Group

<u>I.Q.</u>	<u>Frequency</u>
70--79	2

Median.....78  
Below median for grade.....34



CHART IX  
THE DISTRIBUTION OF INTELLIGENCE

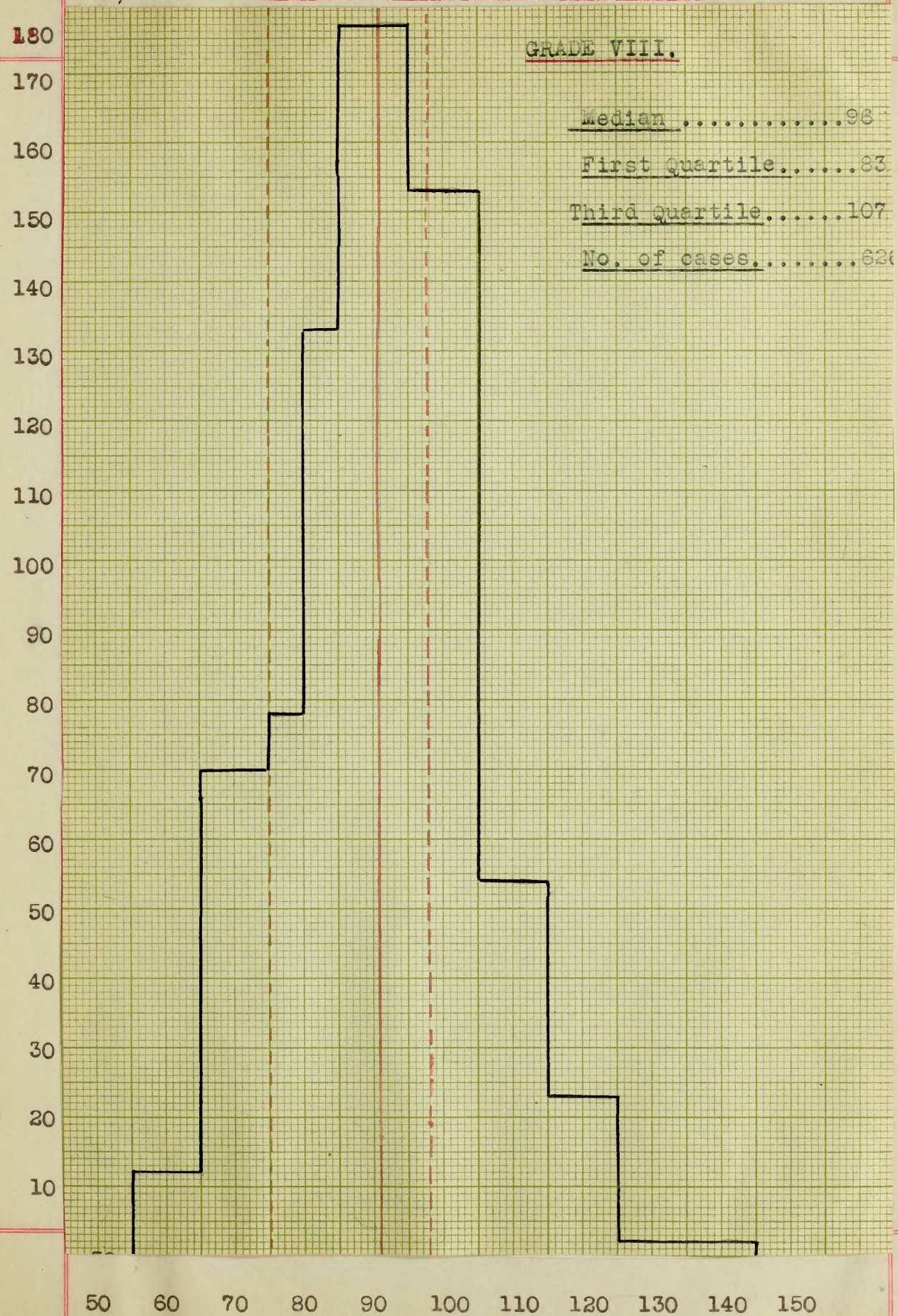
GRADE VIII.

Median .....96

First Quartile.....83

Third Quartile.....107

No. of cases.....626





44

CHART IX  
THE DISTRIBUTION OF INTELLIGENCE

50 60 70 80 90 100 110 120 130 140 150



CHART X.  
THE SPREAD OF AGES  
GRADE VIII.

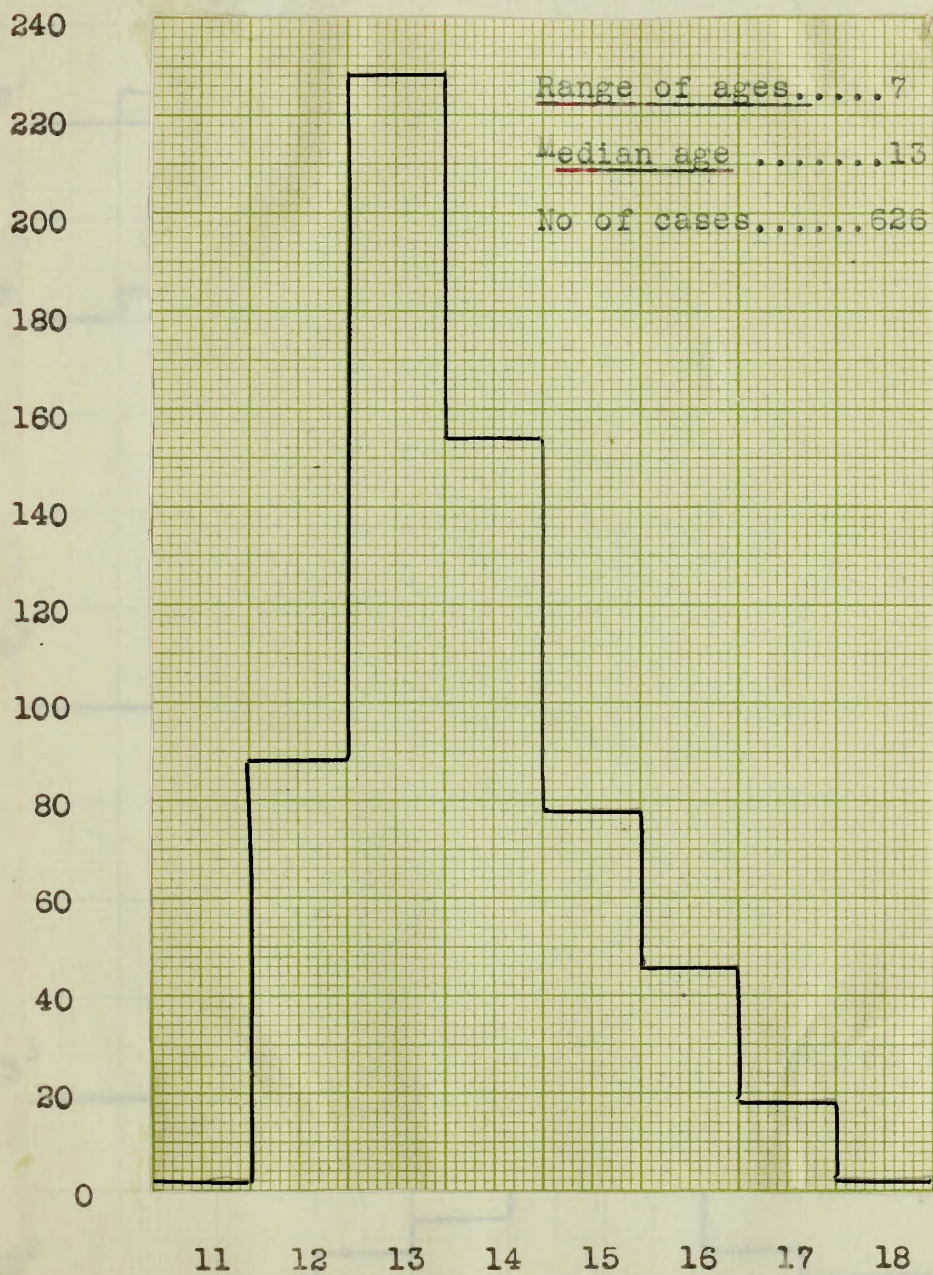


CHART X.  
THE SPREAD OF AGES  
GRADE VIII.

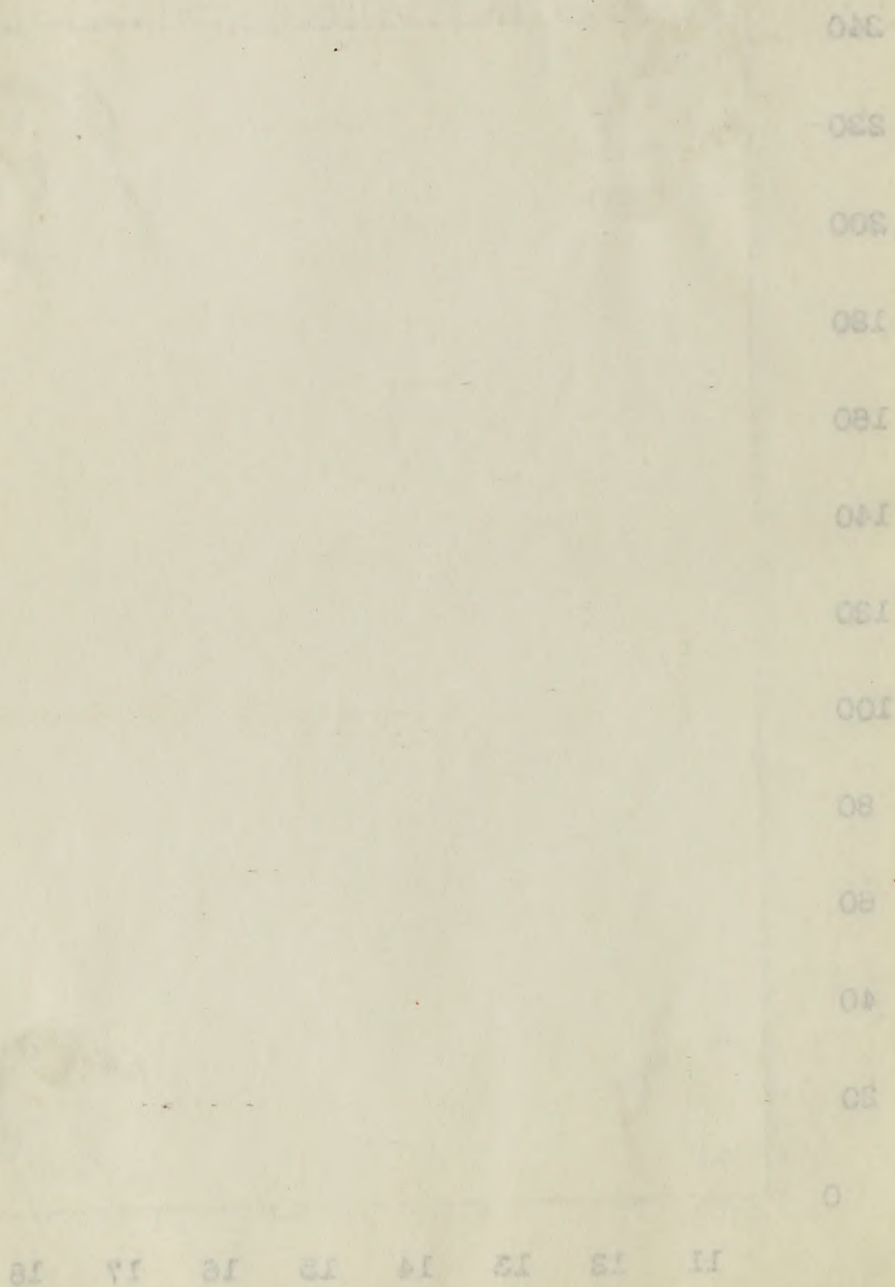




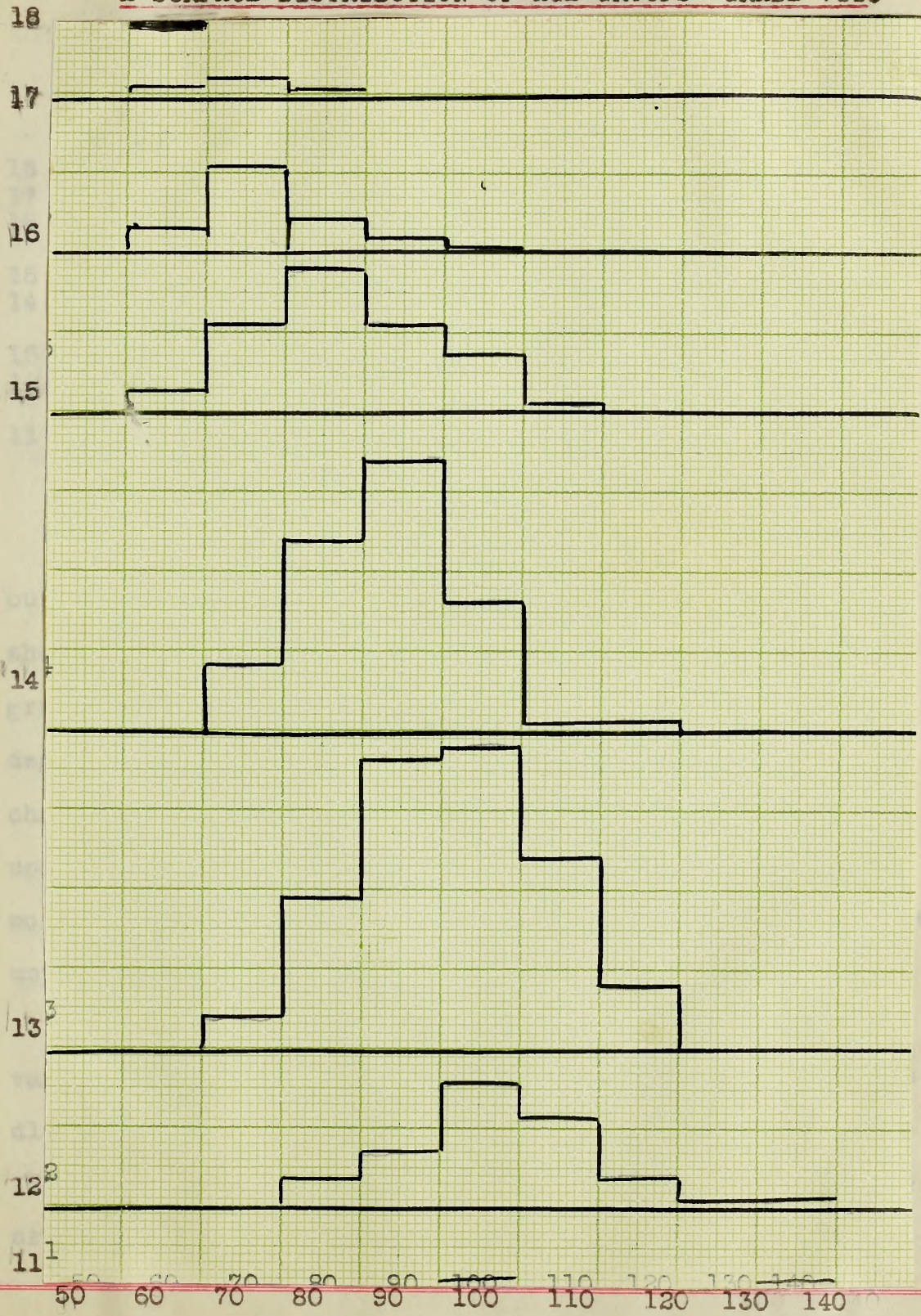
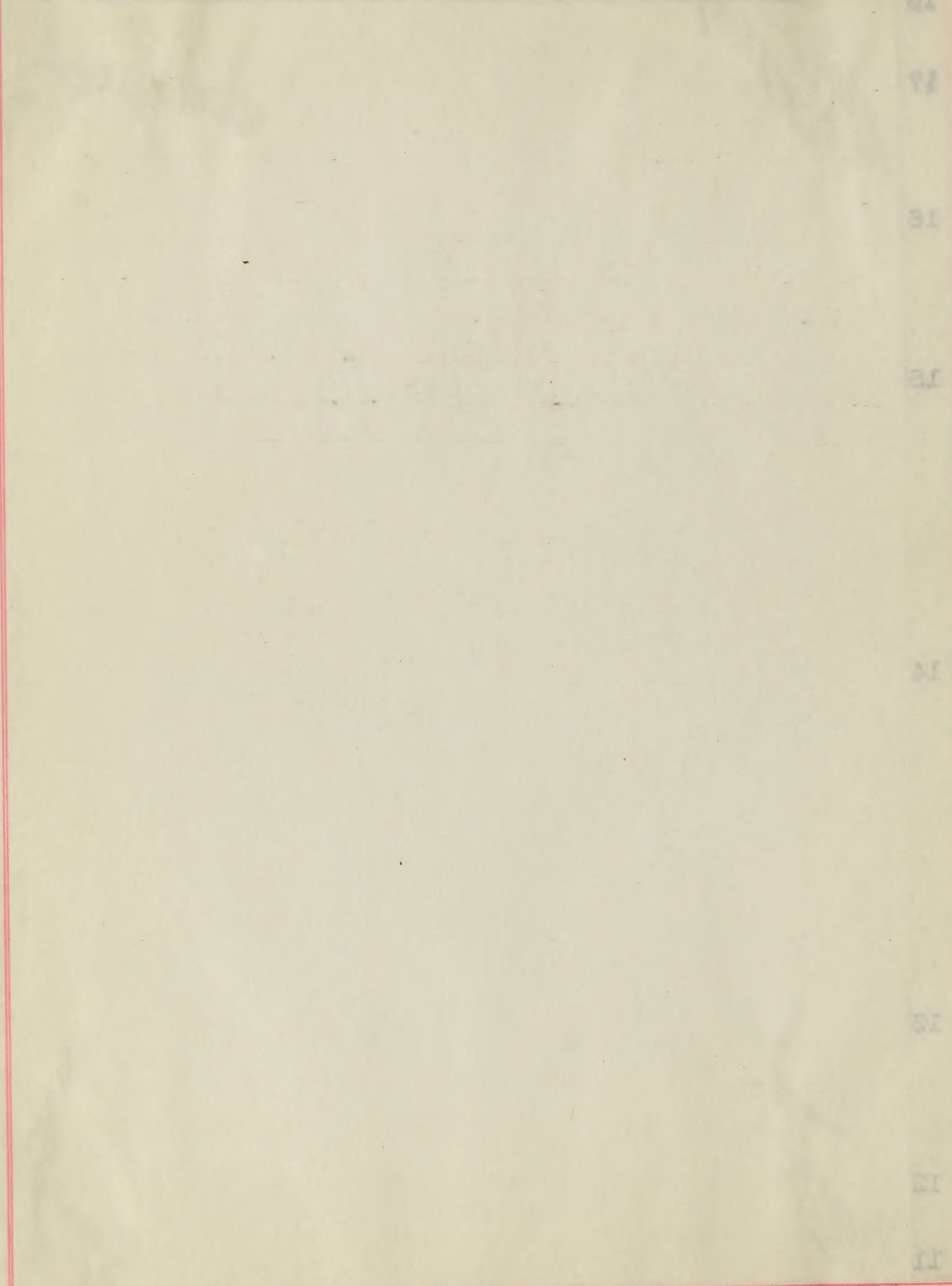
CHART XIA SURFACE DISTRIBUTION OF AGE GROUPS- GRADE VIII



CHART XI

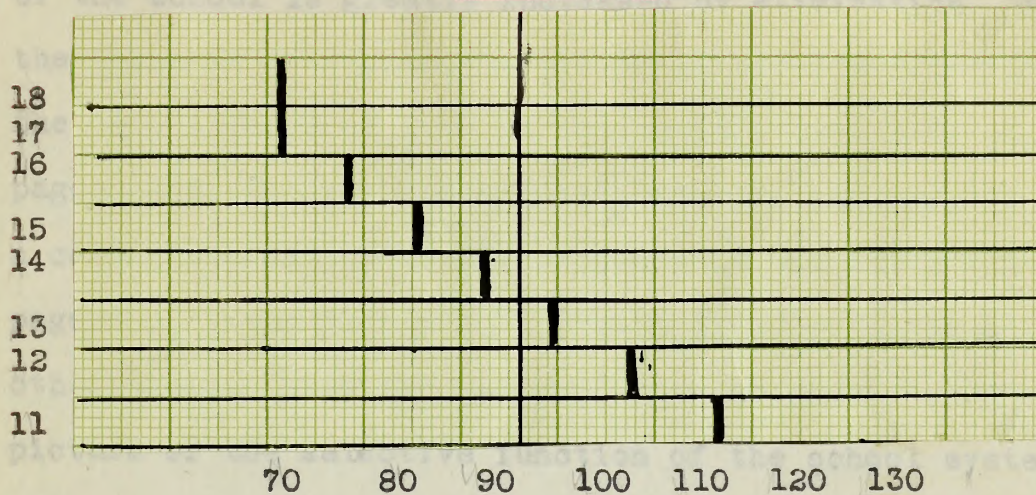
A SURFACE DISTRIBUTION OF AGE GROUPS - GRADE VIII



100 90 80 70 60 50 40 30 20 10 0



## CHART XII

THE MEDIAN OF THE AGE GROUPS.GRADE VIII.

A glance at the surfaces of distribution of intelligence in Grade VIII and in Grade IV shows at once that in the years intervening between these grades the selective function has been at work to such a degree that the shape of the curve has been altered. The chart upon page 49 shows the two curves, one superimposed upon the other. Here the modification can be noted even more distinctly, for the compression and elongation of the upper curve is conspicuous.

To be sure the upper ranges have varied but little increasing from 12% to 13%, but the middle groups (80-90-100) have increased from 62% in Grade IV to 74% in Grade VIII. The lower ranges, on the contrary, have decreased from 25% to 14%. This decrease in na-

The  
change  
in the  
curve  
of  
Grade  
VIII.



THE MEDIAN OF THE AGE GROUPS.

GRADE VIII.

18  
17  
16  
15  
14  
13  
12  
11

70 80 90 100 110 120 130

A glance at the surfaces of distri-

bution of intelligence in Grade VIII and in Grade IV shows at once that in the years intervening between these grades the selective function has been at work to such a degree that the shape of the curve has been altered. The chart upon page 48 shows the two curves, one superimposed upon the other. Here the modification can be noted even more distinctly, for the compression and elongation of the upper curve is conspicuous.

To be sure the upper ranges have varied but little increasing from 12% to 13%, but the middle groups (80-90-100) have increased from 62% in Grade IV to 74% in Grade VIII. The lower ranges, on the contrary, have decreased from 25% to 14%. This decrease in na-

The  
change  
in the  
curve  
of  
Grade  
VIII.

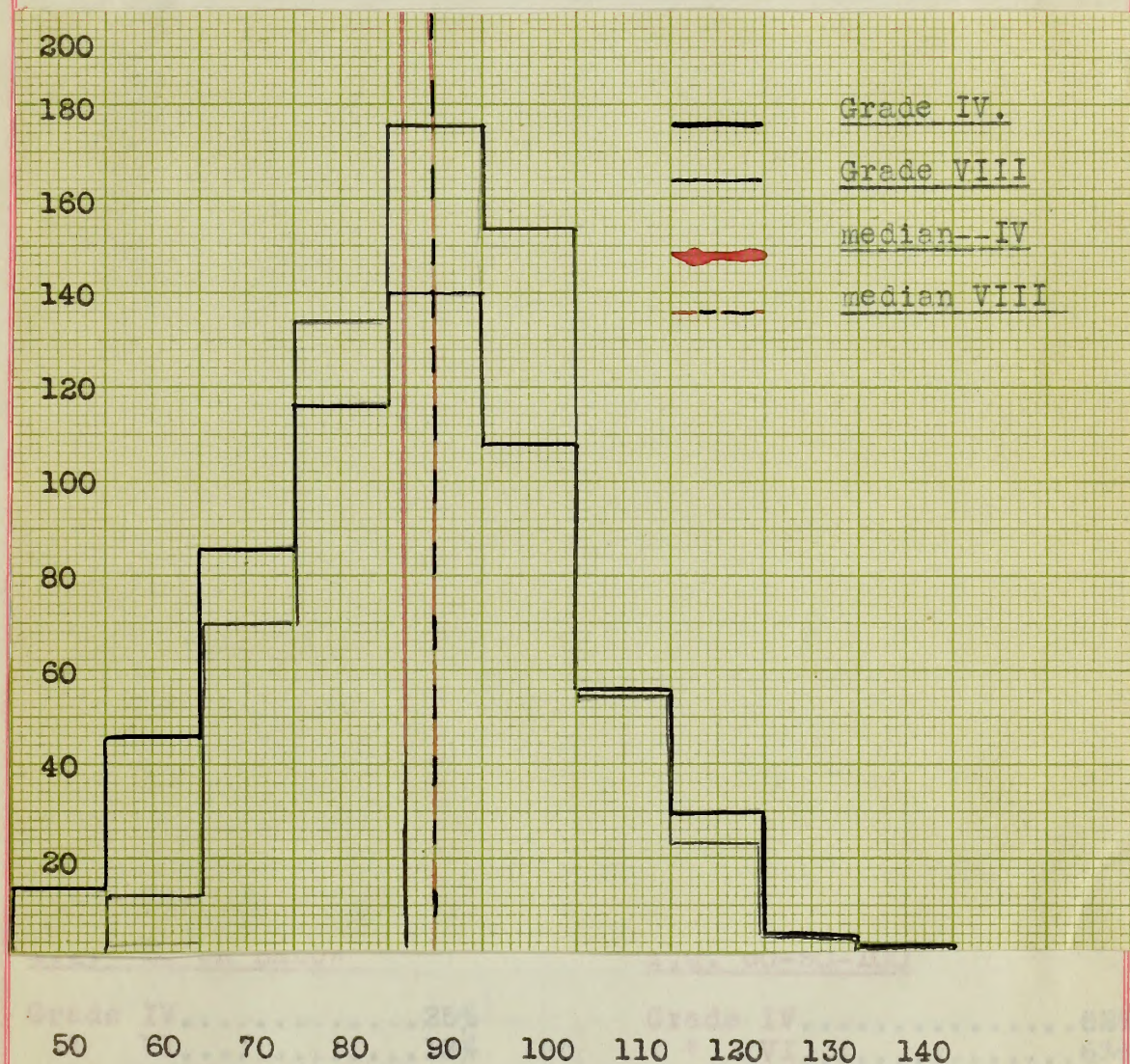


tural and to be expected, since the limits of compulsory school age have been reached, and the selective function of the school is greatly increased by elimination. For the purposes of comparison charts of the distribution of the intelligence of high school seniors have been added on pages 52 and 53; the distribution of ages on page 55; and a comparison of the curves of Grade IV and Grade XII on page 54. These high school charts will be discussed in another place. They are included here to give a more complete picture of the selective function of the school system.

It will be noted that while the middle group remains fairly constant (62% grade IV -- 63% grade XII) at either extremity great changes have taken place. The lower ranges have been practically eliminated (25% grade IV -- 4% grade XII) and the upper ranges more than doubled (13% grade IV to 33% grade XII). This has very naturally affected the surface and curve of distribution. The chart on page 54 shows this extreme of modification. The other charts and tables which follow require little explanatory comment.

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 school age have been reached, and the selective function  
 of the school is greatly increased by elimination. For  
 the purpose of comparison charts of the distribution of  
 the intelligence of high school seniors have been added on  
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 a comparison of the curves of Grade IV and Grade XII on  
 page 55. These high school charts will be discussed in an  
 other place. They are included here to give a more complete  
 picture of the selective function of the school system.  
 It will be noted that while the mid-  
 dle group remains fairly constant (83% Grade IV -- 83% Grade  
 XII) at either extremely great changes have taken place.  
 The lower ranges have been practically eliminated (55%  
 Grade IV -- 4% Grade XII) and the upper ranges more than  
 doubled (13% Grade IV to 33% Grade XII). This has very  
 naturally affected the surface and curve of distribution.  
 The chart on page 54 shows this extreme of modification.  
 The other charts and tables which follow require little  
 explanatory comment.



CHART XIIITHE CURVES OF DISTRIBUTION OF INTELLIGENCEOFGRADES IV AND VIII



23

CHART VIII

THE CURVES OF DISTRIBUTION OF INTELLIGENCE

OF

GRADES IV AND VIII

50 60 70 80 90 100 110 120 130 140



TABLE VII  
TABLE OF COMPARISONS

INTELLIGENCE DISTRIBUTION

<u>I.Q.</u>	<u>GRADE IV</u>	<u>GRADE VI</u>	<u>GRADE VIII</u>
50--59.....	2%	1%	0
60--69.....	9	5%	2%
70--79.....	14	12	12
80--89.....	20	19	26
90--99.....	23	22	27
100--109.....	19	22	21
110--119.....	9	12	8
120--129.....	4	5	4
130--139.....		2	
140--149.....			
150--159.....			

HIGH SCHOOL SENIORS.      Grade Average

50--59.....		1%
60--69.....		5
70--79.....	4%	13
80--89.....	14%	21
90--99.....	24	24
100--109.....	25	21
110--119.....	19	10
120--129.....	10	4
130--139.....	2	
140--149.....	1	
150--159.....	1	

I.Q. 79 OR BELOW

Grade IV.....	25%
" VI.....	18%
" VIII.....	14%
" XII.....	4%

I.Q. 80-90-100

Grade IV.....	62%
" VI.....	63%
" VIII.....	74%
" XII.....	63%

I.Q. 110 and up

Grade IV.....	13%
" VI.....	19%
" VIII.....	12%
" XII.....	33%

TABLE VII  
TABLE OF COMPARISONS

INTELLIGENCE DISTRIBUTION

<u>GRADE VIII</u>	<u>GRADE VI</u>	<u>GRADE IV</u>	<u>I.Q.</u>
0	14	24	50--59
24	13	8	60--69
12	12	14	70--79
28	19	30	80--89
27	22	25	90--99
21	22	18	100-109
8	12	8	110-119
4	5	4	120-129
	2		130-139
			140-149
			150-159

HIGH SCHOOL SENIORS      Grade Average

14			50--59
2			60--69
12		45	70--79
21		14	80--89
24		24	90--99
21		28	100-109
10		18	110-119
4		10	120-129
		2	130-139
		1	140-149
		1	150-159

I.Q. 50-59

23	Grade IV	25	Grade IV
23	VI	18	VI
24	VII	14	VII
22	XII	4	XII

I.Q. 110 and up

12	Grade IV	12	Grade IV
12	VI		VI
12	VII		VII
12	XII		XII



CHART XIV  
MEDIANS OF THE AGE GROUPS.

OF  
GRADE IV--VI--VIII

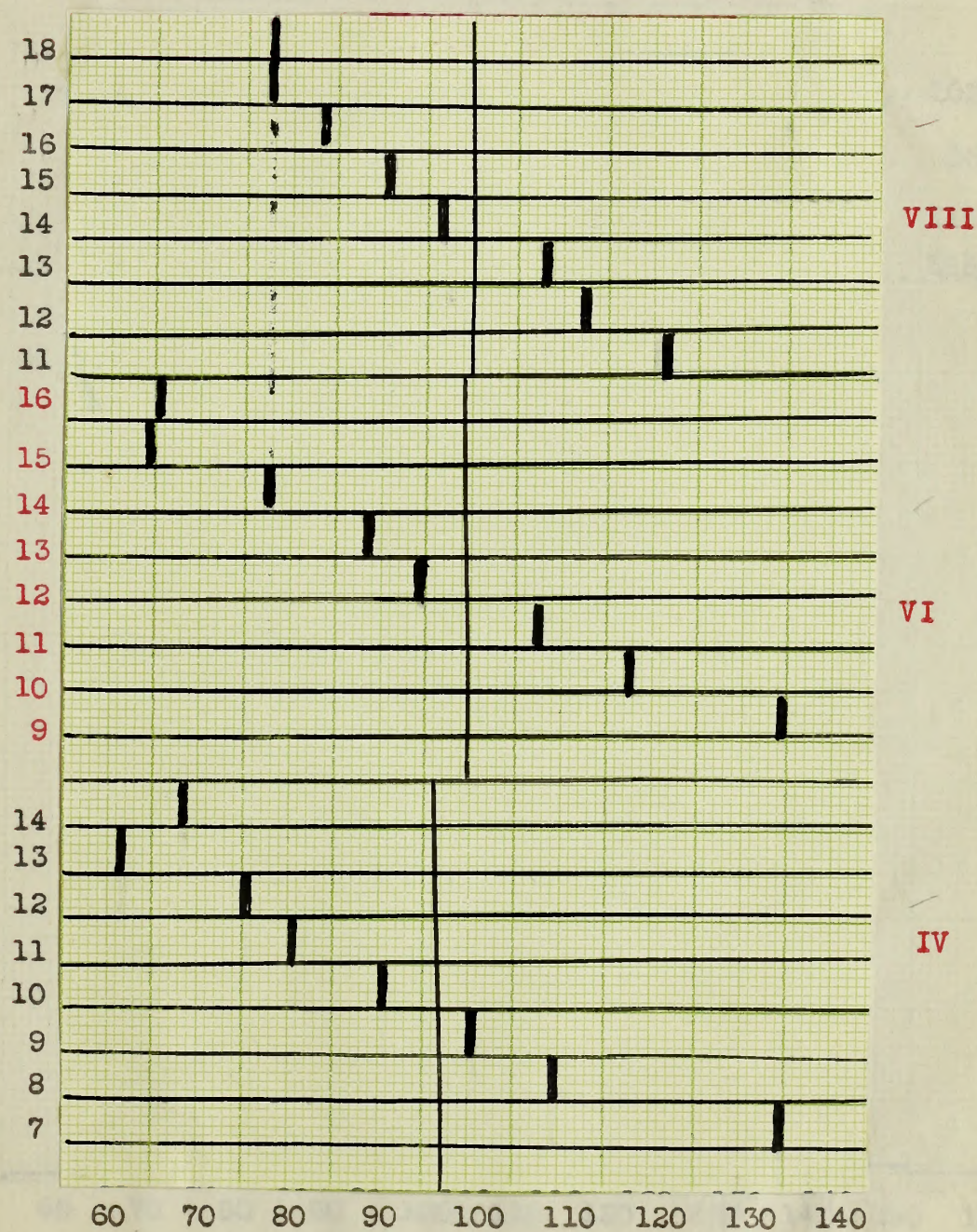








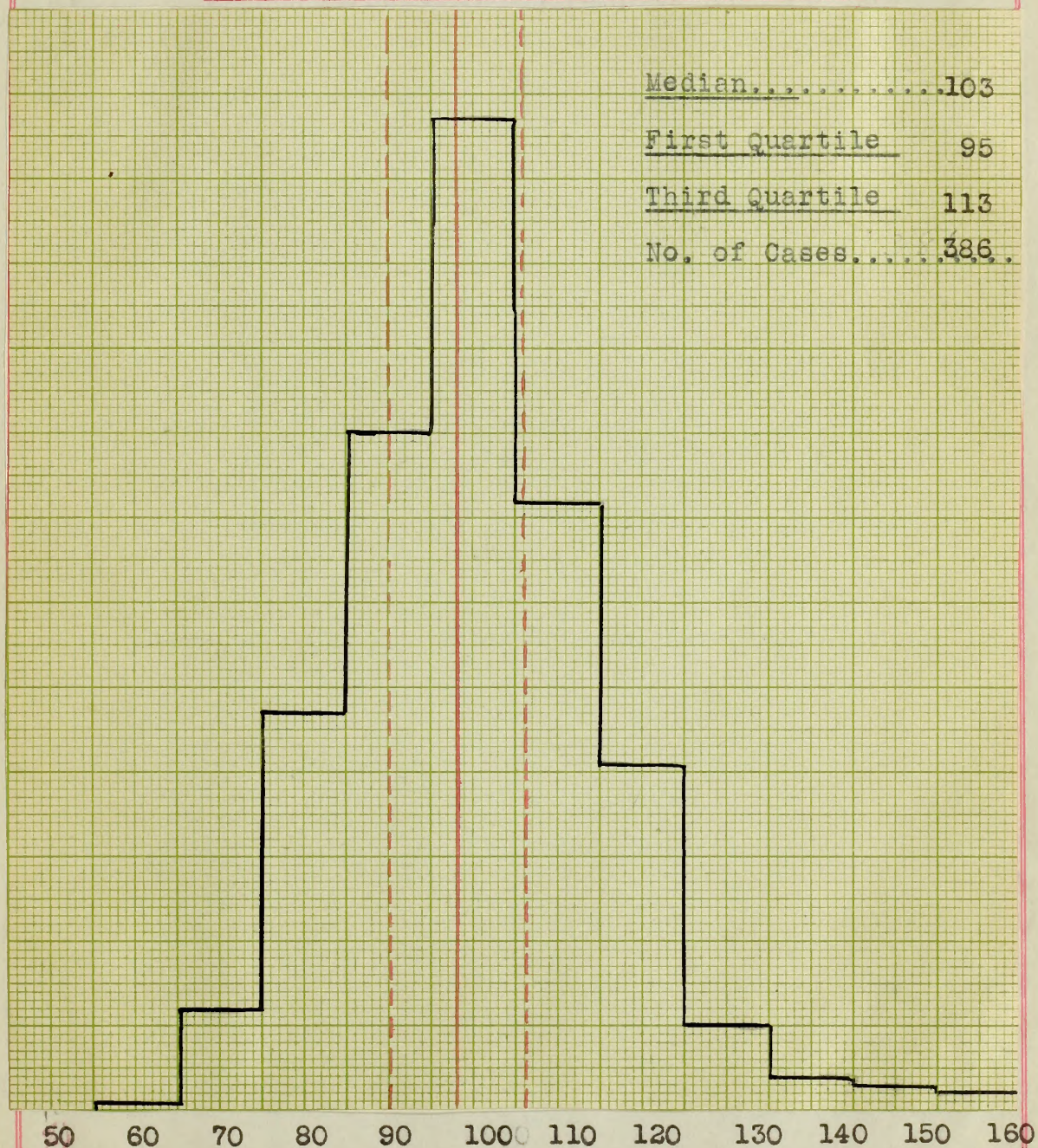
CHART XVTHE DISTRIBUTION OF INTELLIGENCEOFTHE SENIOR CLASS OF A BOYS' HIGH SCHOOL



CHART XVTHE DISTRIBUTION OF INTELLIGENCEOFTHE SENIOR CLASS OF A BOYS' HIGH SCHOOL

80 60 40 20 100 110 120 130 140 150 160



CHART XVI  
THE DISTRIBUTION OF INTELLIGENCE OF  
THE SENIOR CLASS OF A GIRLS' HIGH SCHOOL

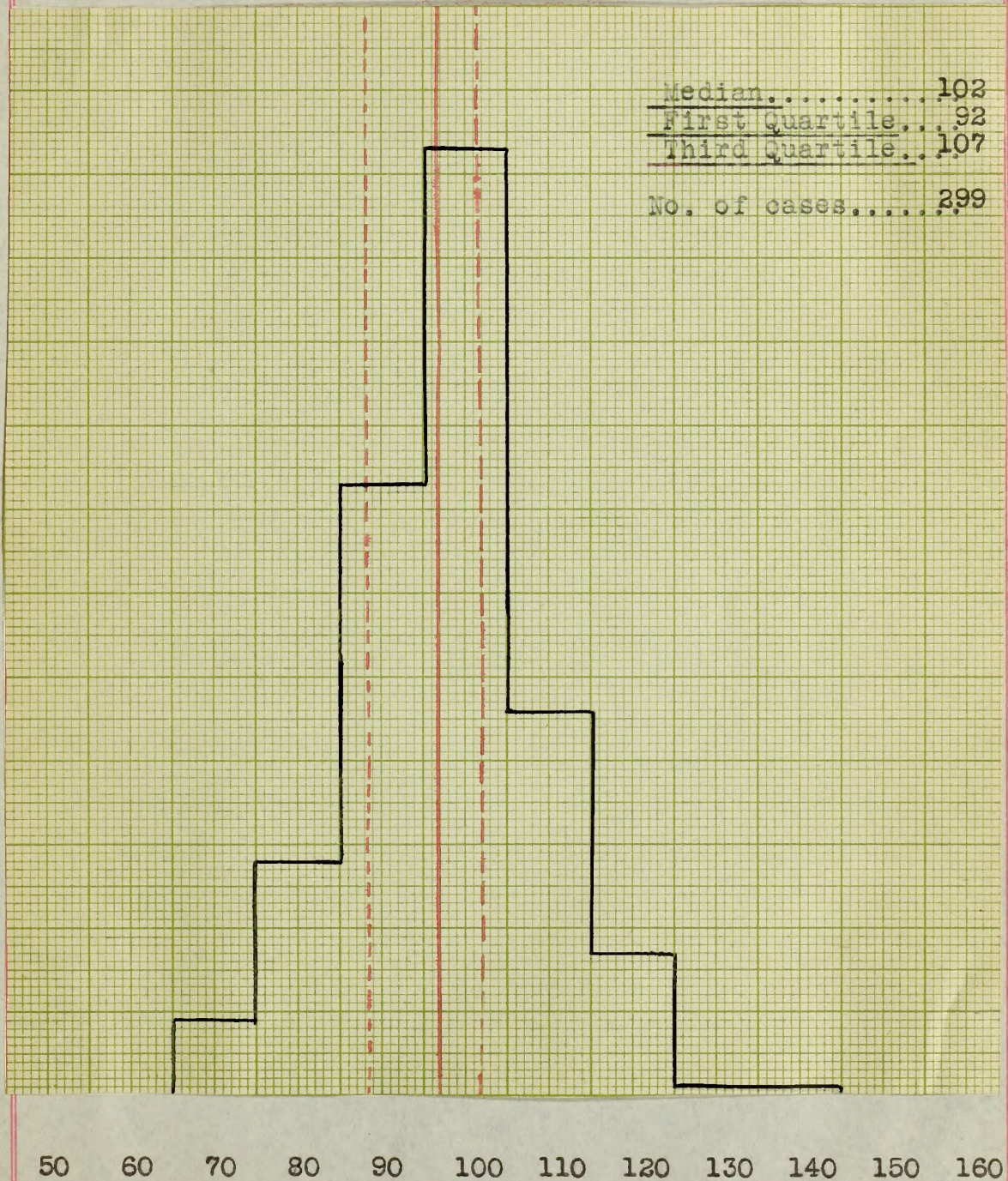


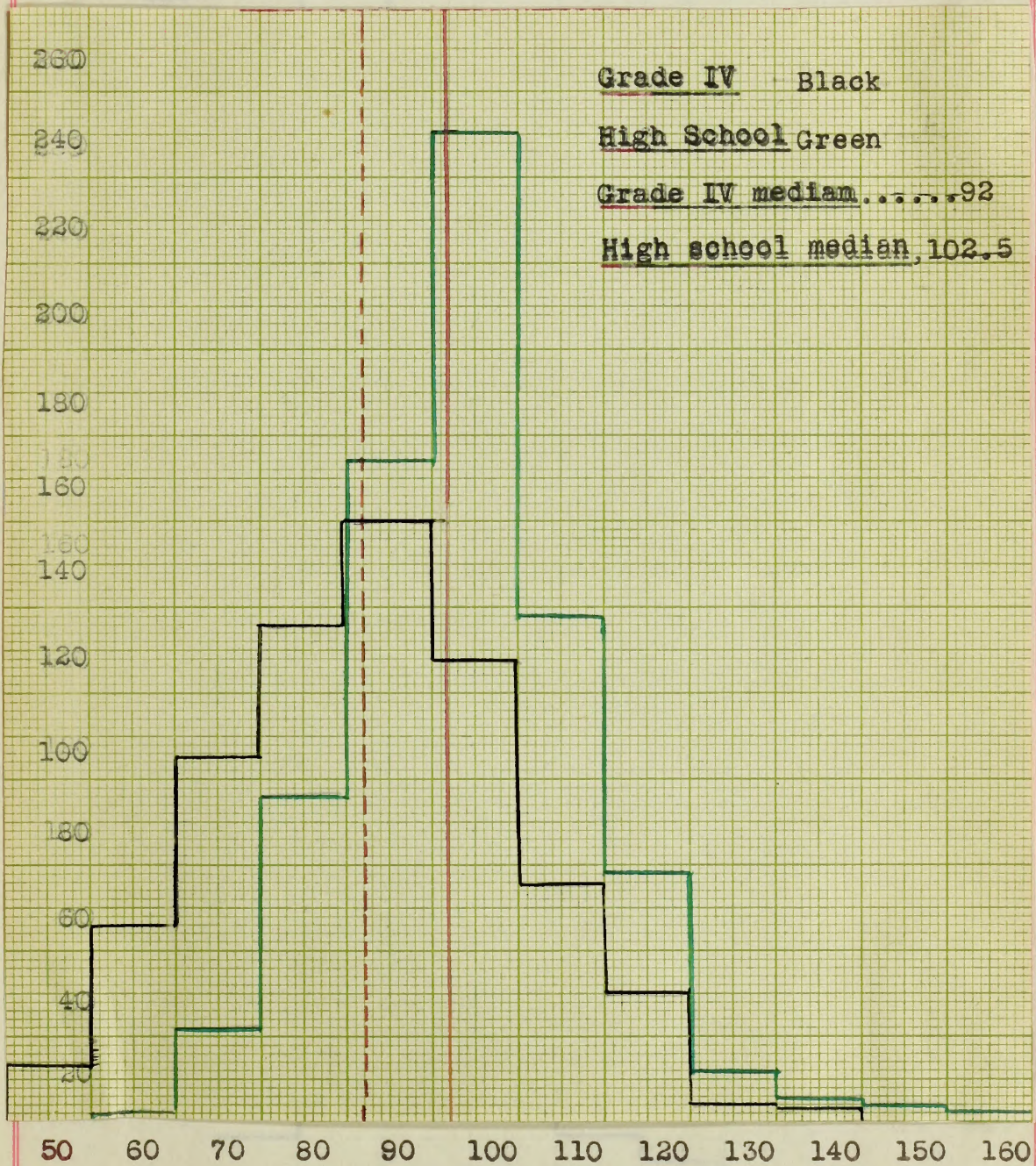


CHART XVI  
THE DISTRIBUTION OF INTELLIGENCE OF  
THE SENIOR CLASS OF A GIRLS' HIGH SCHOOL

50 60 70 80 90 100 110 120 130 140 150 160



CHART XVII  
THE DISTRIBUTION OF INTELLIGENCE  
OF  
BOTH GRADE IV and Grade XII





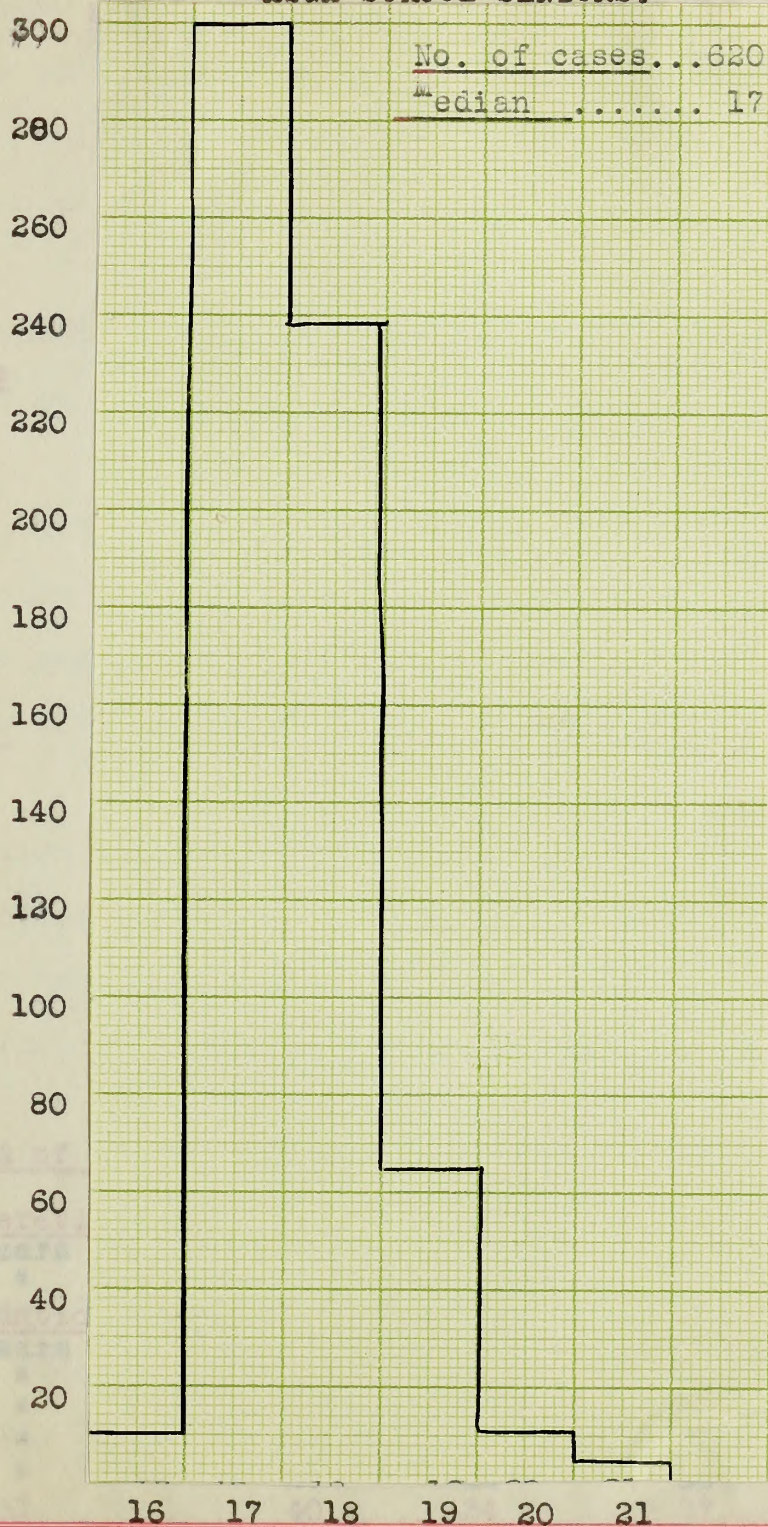




## CHART XVIII

SPREAD OF AGES.

## HIGH SCHOOL SENIORS.



STREET XVII

SPREAD OF AGES

HIGH SCHOOL SENIORS

200

260

280

240

220

200

180

160

140

120

100

80

60

40

20

16 17 18 19 20 21



**TABLE VIII**  
**SIGNIFICANT COMPARISONS**

<u>Grade</u>	<u>Median</u>	<u>First Quartile</u>	<u>Third Quartile</u>
IV	92	81	104
VI	95	83	107
VIII	96	85	107
XII	102	95	113

PERCENTAGES BELOW 85

<u>Grade</u>	
IV	31%
VI	29%
VIII	25%
XII	9%

PERCENTAGES ABOVE 110

<u>GRADE</u>	
IV	13%
VI	19%
VIII	12%
XII	33%

A COMPARISON OF AGES

	<u>IV</u>	<u>VI</u>	<u>VIII</u>	<u>XII</u>
<u>Spread of years</u>	7	7	7	6
<u>Acceleration</u>	20%	14 %	13 %	2 %
2 years	$\frac{1}{2}\%$	$\frac{1}{5}$	$\frac{1}{3}$	0
1 "	19 $\frac{1}{2}\%$	13 $\frac{4}{5}\%$	12 $\frac{2}{3}\%$	2%
<u>Retardation</u>	40%	50%	50%	50%
5 years	(	$\frac{1}{5}$	$\frac{1}{3}$	(
4 "	{ 4	2	$\frac{2}{3}$	{ 1
3 "	{	7 $\frac{4}{5}$	7	{
2 "	{ 9	14	16	{ 9
1 "	{ 27	26	26	{ 40
<u>Normal</u>	40	34	37	48

TABLE VIII  
SIGNIFICANT COMPARISONS

Grade	Median	First Quartile	Third Quartile
IV	83	81	104
VI	85	83	107
VIII	88	85	107
XII	102	85	113
PERCENTAGES BELOW 85			
Grade			
IV	31%		
VI	38%		
VIII	35%		
XII	8%		
PERCENTAGES ABOVE 110			
Grade			
IV	13%		
VI	13%		
VIII	13%		
XII	33%		
A COMPARISON OF AGES			
IV	VI	VIII	XII
7	7	7	8
10 1/2	14 1/2	13 1/2	2 1/2
13 1/2	13 1/2	13 1/2	0
15 1/2	15 1/2	15 1/2	3 1/2
17 1/2	17 1/2	17 1/2	5 1/2
19 1/2	19 1/2	19 1/2	7 1/2
21 1/2	21 1/2	21 1/2	9 1/2
23 1/2	23 1/2	23 1/2	11 1/2
25 1/2	25 1/2	25 1/2	13 1/2
27 1/2	27 1/2	27 1/2	15 1/2
29 1/2	29 1/2	29 1/2	17 1/2
31 1/2	31 1/2	31 1/2	19 1/2
33 1/2	33 1/2	33 1/2	21 1/2
35 1/2	35 1/2	35 1/2	23 1/2
37 1/2	37 1/2	37 1/2	25 1/2
39 1/2	39 1/2	39 1/2	27 1/2
41 1/2	41 1/2	41 1/2	29 1/2
43 1/2	43 1/2	43 1/2	31 1/2
45 1/2	45 1/2	45 1/2	33 1/2
47 1/2	47 1/2	47 1/2	35 1/2
49 1/2	49 1/2	49 1/2	37 1/2
51 1/2	51 1/2	51 1/2	39 1/2
53 1/2	53 1/2	53 1/2	41 1/2
55 1/2	55 1/2	55 1/2	43 1/2
57 1/2	57 1/2	57 1/2	45 1/2
59 1/2	59 1/2	59 1/2	47 1/2
61 1/2	61 1/2	61 1/2	49 1/2
63 1/2	63 1/2	63 1/2	51 1/2
65 1/2	65 1/2	65 1/2	53 1/2
67 1/2	67 1/2	67 1/2	55 1/2
69 1/2	69 1/2	69 1/2	57 1/2
71 1/2	71 1/2	71 1/2	59 1/2
73 1/2	73 1/2	73 1/2	61 1/2
75 1/2	75 1/2	75 1/2	63 1/2
77 1/2	77 1/2	77 1/2	65 1/2
79 1/2	79 1/2	79 1/2	67 1/2
81 1/2	81 1/2	81 1/2	69 1/2
83 1/2	83 1/2	83 1/2	71 1/2
85 1/2	85 1/2	85 1/2	73 1/2
87 1/2	87 1/2	87 1/2	75 1/2
89 1/2	89 1/2	89 1/2	77 1/2
91 1/2	91 1/2	91 1/2	79 1/2
93 1/2	93 1/2	93 1/2	81 1/2
95 1/2	95 1/2	95 1/2	83 1/2
97 1/2	97 1/2	97 1/2	85 1/2
99 1/2	99 1/2	99 1/2	87 1/2
101 1/2	101 1/2	101 1/2	89 1/2
103 1/2	103 1/2	103 1/2	91 1/2
105 1/2	105 1/2	105 1/2	93 1/2
107 1/2	107 1/2	107 1/2	95 1/2
109 1/2	109 1/2	109 1/2	97 1/2
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113 1/2	113 1/2	113 1/2	101 1/2
115 1/2	115 1/2	115 1/2	103 1/2
117 1/2	117 1/2	117 1/2	105 1/2
119 1/2	119 1/2	119 1/2	107 1/2
121 1/2	121 1/2	121 1/2	109 1/2
123 1/2	123 1/2	123 1/2	111 1/2
125 1/2	125 1/2	125 1/2	113 1/2
127 1/2	127 1/2	127 1/2	115 1/2
129 1/2	129 1/2	129 1/2	117 1/2
131 1/2	131 1/2	131 1/2	119 1/2
133 1/2	133 1/2	133 1/2	121 1/2
135 1/2	135 1/2	135 1/2	123 1/2
137 1/2	137 1/2	137 1/2	125 1/2
139 1/2	139 1/2	139 1/2	127 1/2
141 1/2	141 1/2	141 1/2	129 1/2
143 1/2	143 1/2	143 1/2	131 1/2
145 1/2	145 1/2	145 1/2	133 1/2
147 1/2	147 1/2	147 1/2	135 1/2
149 1/2	149 1/2	149 1/2	137 1/2
151 1/2	151 1/2	151 1/2	139 1/2
153 1/2	153 1/2	153 1/2	141 1/2
155 1/2	155 1/2	155 1/2	143 1/2
157 1/2	157 1/2	157 1/2	145 1/2
159 1/2	159 1/2	159 1/2	147 1/2
161 1/2	161 1/2	161 1/2	149 1/2
163 1/2	163 1/2	163 1/2	151 1/2
165 1/2	165 1/2	165 1/2	153 1/2
167 1/2	167 1/2	167 1/2	155 1/2
169 1/2	169 1/2	169 1/2	157 1/2
171 1/2	171 1/2	171 1/2	159 1/2
173 1/2	173 1/2	173 1/2	161 1/2
175 1/2	175 1/2	175 1/2	163 1/2
177 1/2	177 1/2	177 1/2	165 1/2
179 1/2	179 1/2	179 1/2	167 1/2
181 1/2	181 1/2	181 1/2	169 1/2
183 1/2	183 1/2	183 1/2	171 1/2
185 1/2	185 1/2	185 1/2	173 1/2
187 1/2	187 1/2	187 1/2	175 1/2
189 1/2	189 1/2	189 1/2	177 1/2
191 1/2	191 1/2	191 1/2	179 1/2
193 1/2	193 1/2	193 1/2	181 1/2
195 1/2	195 1/2	195 1/2	183 1/2
197 1/2	197 1/2	197 1/2	185 1/2
199 1/2	199 1/2	199 1/2	187 1/2
201 1/2	201 1/2	201 1/2	189 1/2
203 1/2	203 1/2	203 1/2	191 1/2
205 1/2	205 1/2	205 1/2	193 1/2
207 1/2	207 1/2	207 1/2	195 1/2
209 1/2	209 1/2	209 1/2	197 1/2
211 1/2	211 1/2	211 1/2	199 1/2
213 1/2	213 1/2	213 1/2	201 1/2
215 1/2	215 1/2	215 1/2	203 1/2
217 1/2	217 1/2	217 1/2	205 1/2
219 1/2	219 1/2	219 1/2	207 1/2
221 1/2	221 1/2	221 1/2	209 1/2
223 1/2	223 1/2	223 1/2	211 1/2
225 1/2	225 1/2	225 1/2	213 1/2
227 1/2	227 1/2	227 1/2	215 1/2
229 1/2	229 1/2	229 1/2	217 1/2
231 1/2	231 1/2	231 1/2	219 1/2
233 1/2	233 1/2	233 1/2	221 1/2
235 1/2	235 1/2	235 1/2	223 1/2
237 1/2	237 1/2	237 1/2	225 1/2
239 1/2	239 1/2	239 1/2	227 1/2
241 1/2	241 1/2	241 1/2	229 1/2
243 1/2	243 1/2	243 1/2	231 1/2
245 1/2	245 1/2	245 1/2	233 1/2
247 1/2	247 1/2	247 1/2	235 1/2
249 1/2	249 1/2	249 1/2	237 1/2
251 1/2	251 1/2	251 1/2	239 1/2
253 1/2	253 1/2	253 1/2	241 1/2
255 1/2	255 1/2	255 1/2	243 1/2
257 1/2	257 1/2	257 1/2	245 1/2
259 1/2	259 1/2	259 1/2	247 1/2
261 1/2	261 1/2	261 1/2	249 1/2
263 1/2	263 1/2	263 1/2	251 1/2
265 1/2	265 1/2	265 1/2	253 1/2
267 1/2	267 1/2	267 1/2	255 1/2
269 1/2	269 1/2	269 1/2	257 1/2
271 1/2	271 1/2	271 1/2	259 1/2
273 1/2	273 1/2	273 1/2	261 1/2
275 1/2	275 1/2	275 1/2	263 1/2
277 1/2	277 1/2	277 1/2	265 1/2
279 1/2	279 1/2	279 1/2	267 1/2
281 1/2	281 1/2	281 1/2	269 1/2
283 1/2	283 1/2	283 1/2	271 1/2
285 1/2	285 1/2	285 1/2	273 1/2
287 1/2	287 1/2	287 1/2	275 1/2
289 1/2	289 1/2	289 1/2	277 1/2
291 1/2	291 1/2	291 1/2	279 1/2
293 1/2	293 1/2	293 1/2	281 1/2
295 1/2	295 1/2	295 1/2	283 1/2
297 1/2	297 1/2	297 1/2	285 1/2
299 1/2	299 1/2	299 1/2	287 1/2
301 1/2	301 1/2	301 1/2	289 1/2
303 1/2	303 1/2	303 1/2	291 1/2
305 1/2	305 1/2	305 1/2	293 1/2
307 1/2	307 1/2	307 1/2	295 1/2
309 1/2	309 1/2	309 1/2	297 1/2
311 1/2	311 1/2	311 1/2	299 1/2
313 1/2	313 1/2	313 1/2	301 1/2
315 1/2	315 1/2	315 1/2	303 1/2
317 1/2	317 1/2	317 1/2	305 1/2
319 1/2	319 1/2	319 1/2	307 1/2
321 1/2	321 1/2	321 1/2	309 1/2
323 1/2	323 1/2	323 1/2	311 1/2
325 1/2	325 1/2	325 1/2	313 1/2
327 1/2	327 1/2	327 1/2	315 1/2
329 1/2	329 1/2	329 1/2	317 1/2
331 1/2	331 1/2	331 1/2	319 1/2
333 1/2	333 1/2	333 1/2	321 1/2
335 1/2	335 1/2	335 1/2	323 1/2
337 1/2	337 1/2	337 1/2	325 1/2
339 1/2	339 1/2	339 1/2	327 1/2
341 1/2	341 1/2	341 1/2	329 1/2
343 1/2	343 1/2	343 1/2	331 1/2
345 1/2	345 1/2	345 1/2	333 1/2
347 1/2	347 1/2	347 1/2	335 1/2
349 1/2	349 1/2	349 1/2	337 1/2
351 1/2	351 1/2	351 1/2	339 1/2
353 1/2	353 1/2	353 1/2	341 1/2
355 1/2	355 1/2	355 1/2	343 1/2
357 1/2	357 1/2	357 1/2	345 1/2
359 1/2	359 1/2	359 1/2	347 1/2
361 1/2	361 1/2	361 1/2	349 1/2
363 1/2	363 1/2	363 1/2	351 1/2
365 1/2	365 1/2	365 1/2	353 1/2
367 1/2	367 1/2	367 1/2	355 1/2
369 1/2	369 1/2	369 1/2	357 1/2
371 1/2	371 1/2	371 1/2	359 1/2
373 1/2	373 1/2	373 1/2	361 1/2
375 1/2	375 1/2	375 1/2	363 1/2
377 1/2	377 1/2	377 1/2	365 1/2
379 1/2	379 1/2	379 1/2	367 1/2
381 1/2	381 1/2	381 1/2	369 1/2
383 1/2	383 1/2	383 1/2	371 1/2
385 1/2	385 1/2	385 1/2	373 1/2
387 1/2	387 1/2	387 1/2	375 1/2
389 1/2	389 1/2	389 1/2	377 1/2
391 1/2	391 1/2	391 1/2	379 1/2
393 1/2	393 1/2	393 1/2	381 1/2
395 1/2	395 1/2	395 1/2	383 1/2
397 1/2	397 1/2	397 1/2	385 1/2
399 1/2	399 1/2	399 1/2	387 1/2
401 1/2	401 1/2	401 1/2	389 1/2
403 1/2	403 1/2	403 1/2	391 1/2
405 1/2	405 1/2	405 1/2	393 1/2
407 1/2	407 1/2	407 1/2	395 1/2
409 1/2	409 1/2	409 1/2	397 1/2
411 1/2	411 1/2	411 1/2	399 1/2
413 1/2	413 1/2	413 1/2	401 1/2
415 1/2	415 1/2	415 1/2	403 1/2
417 1/2	417 1/2	417 1/2	405 1/2
419 1/2	419 1/2	419 1/2	407 1/2
421 1/2	421 1/2	421 1/2	409 1/2
423 1/2	423 1/2	423 1/2	411 1/2
425 1/2	425 1/2	425 1/2	413 1/2
427 1/2	427 1/2	427 1/2	415 1/2
429 1/2	429 1/2	429 1/2	417 1/2
431 1/2	431 1/2	431 1/2	419 1/2
433 1/2	433 1/2	433 1/2	421 1/2
435 1/2	435 1/2	435 1/2	423 1/2
437 1/2	437 1/2	437 1/2	425 1/2
439 1/2	439 1/2	439 1/2	427 1/2
441 1/2	441 1/2	441 1/2	429 1/2
443 1/2	443 1/2	443 1/2	431 1/2
445 1/2	445 1/2	445 1/2	433 1/2
447 1/2	447 1/2	447 1/2	435 1/2
449 1/2	449 1/2		



What, then, are the conclusions which a teacher-counselor in an elementary school can draw from tables such as these--conclusions which will be of help to her in guiding her students? Taking into consideration the tables dealing with intelligence, it will be noted:

Conclu-  
sions for  
an elemen  
tary  
school  
counselor

1. From the fourth grade to the twelfth there is a decided rise in the median, making a total difference of ten points.

2. There is a corresponding rise in the quartiles, and whereas in the fourth grade 31% of the class lay below the level of high school intelligence, in the eighth grade this has been diminished to 25%, and <sup>to</sup> 9% in the twelfth .

3. In the fourth grade there is a normal distribution of superior children ( above 110). In the eighth grade this figure has changed but slightly (12%), but in the senior class of high school this group comprises practically one-third of the class (33%).

It is beside the problem discussed in this paper to show that the selective function is not one of the legitimate functions of the secondary school. It must be admitted, however, that as schools are administered today they do operate to eliminate a large percent of their primary enrollment. The point for the teacher-counselor to remember is, that the present day curriculums



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1. From the fourth grade to the twelfth there is a decided rise in the median, making a total difference of ten points.
2. There is a corresponding rise in the quartiles, and whereas in the fourth grade 81% of the class lay below the level of high school intelligence, in the eighth grade this has been diminished to 25%, and 3% in the twelfth.
3. In the fourth grade there is a normal distribution of superior children (above 110). In the eighth grade this figure has changed but slightly (12%), but in the senior class of high school this group comprises practically one-third of the class (33%).

It is beside the problem discussed in this paper to show that the selective function is not one of the legitimate functions of the secondary school. It must be admitted, however, that as schools are administered today they do operate to eliminate a large percent of their primary enrollment. The point for the teacher-counselor to remember is, that the present day curriculum



are geared to the requirements of the 33% of superior students and the 30% of better than average students. The other 37%--9% of them dull and the other 26% slightly slower than average-- find the pace set for them extremely difficult, even when the program of studies is modified to provide for individual differences of a sort.

If the elementary teacher-counselor would face the fact-- and make those responsible for the curriculum face it, too-- that certain of these children ought never to be expected to undertake the usual academic courses of the average high school, the problem of elimination would in large measure settle itself. Her problem is two-fold. On the one hand she must do her share in persuading school administrators to include within the high school curriculum, those subjects which are within the range of this slower group. On the other hand she must stimulate these pupils to undertake that secondary work at which they can be successful, and not expose them to the discouragement which will come from failure to achieve an over-ambitious scholastic program. Courses for these un-academically inclined students can be permitted wider freedom in requirements and standards of attainment than those which prepare for entrance to college or to the more skilled branches of business or trade.

The  
problem  
of the  
elementary  
counselor

The question of over-age as a factor



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The question of over-age as a factor



in school completion seems to be of far greater importance than we have been inclined to accord it. While the range of ages found in the graduating class of a high school is but one less than that of a fourth grade, the size of the percentages are extremely significant( Page 55). The extent of acceleration has decreased from two years to one; the amount of it from 20% in the fourth grade to 2% in the twelfth.

Ages

Acceler-  
ation

What becomes of the other 18%? There are no studies, no statistics available to clear this point. Have they been eliminated? A study of the continuation school group--see continuation school chart-- would tend to indicate that this is not a reasonable conclusion. Have they been absorbed by either the normal or the retarded group? It would seem so but it is impossible to tell until further studies have given light upon this very doubtful point. Because in Boston there is a possibility that some of these pupils may have been segregated in a college preparatory high school, a chart of the freshman class of that school has been appended. No chart of the senior class of that school could be made, since no data upon that particular group was available. To balance this specially selected group on the upper level, there is attached as well a chart of a group specially selected on the lower level-- the so-called industrial class of grade VI and grade VIII. These



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groups were not included in the sixth grade or eighth grade groups discussed a few pages back.

It is interesting to note that the retarded group from sixth grade to high school remains constant at 50%, but the extreme differences in the make-up of this 50% are significant for the counselor. In the senior high school the group retarded one year makes up 40% of the 50% of retardation; the group retarded two years, the other 9% as compared with the 26% -16% of grade VIII or the 26%-14% of grade IV. In other words, the group who are more than one year behind the other students of their age, have but a very slender chance of completing their high school course.

From this the teacher-counselor of the elementary school should realize:

## Summary

1. Every child who is shown conclusively-- that is on a basis of dependable tests, preferably the Simon-Binet individual--- to have a mental level of 90 or below is a counselor's problem. But 9 out of every 100 students of this level complete high school. The others are eliminated through failure.
2. Every retarded child is, from the very first grade of retardation, an elimination risk. Each year in addition to this one year of retardation decreases his chances of completing the usual high school, since

Groups were not included in the sixth grade or eighth grade groups discussed a few pages back.

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retarded group from sixth grade to high school remains constant at 50%, but the extreme differences in the make-up of this 50% are significant for the counselor. In the senior high school the group retarded one year makes up 40% of the 50% of retardation; the group retarded two years the other 10% as compared with the 25%-15% of grade VIII or the 25%-15% of grade IV. In other words, the group who are more than one year behind the other students of their age, have but a very slender chance of completing their high school course.

From this the teacher-counselor of

the elementary school should realize:

1. Every child who is shown conclusively--

that is on a basis of dependable tests, preferably the Simon-Binet individual--- to have a mental level of 80 or below is a counselor's problem. But 8 out of every 100 students of this level complete high school. The others are eliminated through failure.

2. Every retarded child is, from the very

first grade of retardation, an elimination risk. Each year in addition to this one year of retardation decreases his chance of completing the usual high school, since



but 10 out of every 100 high school graduates are two years or more behind the median age of their group. Of these 10 retarded students, 9 are retarded two years and but one more than two.

3. Beginning with the fourth grade, or even earlier, the teacher-counselor should know:

a. Which of her pupils are below the intelligence level of the middle quartile of her group.

b. Who are the retarded children in her class, the causes of their retardation, and the amount.

c. Who are the children who are both below the middle quartile of their group and retarded.

d. Who are the accelerants, the amount of their acceleration, and the justification of it.

In this fashion the teacher-counselor can locate very readily those pupils who constitute the usual and understandable problem cases of the group. This calls for no expert knowledge beyond the usual equipment of a teacher, no materials beyond those an average school system can furnish. With these students listed for instant reference, the other cases of failure which occur will stand out as special problems calling for investigation of the cause. These frequently involve a social, moral, emotional, or physical complication which calls for treatment more expert than a teacher can give, nor is

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it incumbent upon her. Her problem is to locate such pupils and to call attention to them.

When elementary counselors from at least the fourth grade up know their students, not in terms of accomplishment, but rather in the relation of that accomplishment to pupil ability, a long step toward solving the question of elimination has been taken. From that point it is easy to reach the next higher one of tempering the curriculum to the capacity of the child and guiding him toward the accomplishment of things that are within his powers.

## II. THE SPREAD OF AGE

AGE	FREQUENCY
10.....	1
11.....	0
12.....	2
13.....	38
14.....	73
15.....	30
16.....	3
17.....	3
Total	154

Range of years....7

Median age .....14

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When elementary counselors from at least the fourth grade up know their students, not in terms of accomplishment, but rather in the relation of that accomplishment to pupil ability, a long step toward solving the question of elimination has been taken. From that point it is easy to reach the next higher one of regarding the curriculum to the capacity of the child and guiding him toward the accomplishment of things that are within his powers.



TABLE IX\*\*\*\*\*EXPLAINING CHART XIX  
A STUDY OF THE FRESHMAN CLASS OF A COLLEGE PREPARATORY  
HIGH SCHOOL

I. THE DISTRIBUTION OF INTELLIGENCE.

<u>I.Q.</u>	<u>FREQUENCY</u>
70--79.....	4
80--89.....	16
90--99.....	31
100--109.....	37
110--119.....	36
120--129.....	19
130--139.....	9
140--149.....	2
	<u>Total 154</u>

Median.....105  
 First Quartile ...96  
 Third Quartile...115

Below 85.....7%

Above 110.....43%

II. THE SPREAD OF AGE

<u>AGE</u>	<u>FREQUENCY</u>
10.....	1
11.....	0
12.....	6
13.....	38
14.....	73
15.....	30
16.....	3
17.....	3
	<u>Total 154</u>

Range of years....7

Median age .....14

TABLE I  
A STUDY OF THE FRESHMAN CLASS OF A COLLEGE PREPARATORY  
HIGH SCHOOL

I. THE DISTRIBUTION OF INTELLIGENCE.

<u>I. Q.</u>	<u>FREQUENCY</u>
70--75	4
80--85	15
90--95	31
100--105	37
110--115	36
120--125	18
130--135	9
140--145	3
<u>Total 183</u>	
Median	105
First Quartile	98
Third Quartile	115
Below 85	75
Above 110	43

II. THE SPREAD OF AGE

<u>AGE</u>	<u>FREQUENCY</u>
10	1
11	0
12	8
13	38
14	73
15	30
16	3
17	3
<u>Total 156</u>	
Range of years	7
Median age	14



Acceleration

4	years	.....	1/3%
3	"	.....	0
2	"	.....	4
1	"	.....	<u>24</u>

Total acceleration.....28 1/3%

Retardation

3	years	.....	2%
2	"	.....	2%
1	"	.....	<u>20%</u>

Total retardation.....24%

Acceleration

1/25	.....	2
0	.....	2
4	.....	2
AS	.....	1

Total acceleration.....25

Retardation

25	.....	2
25	.....	2
205	.....	1

Total retardation.....25



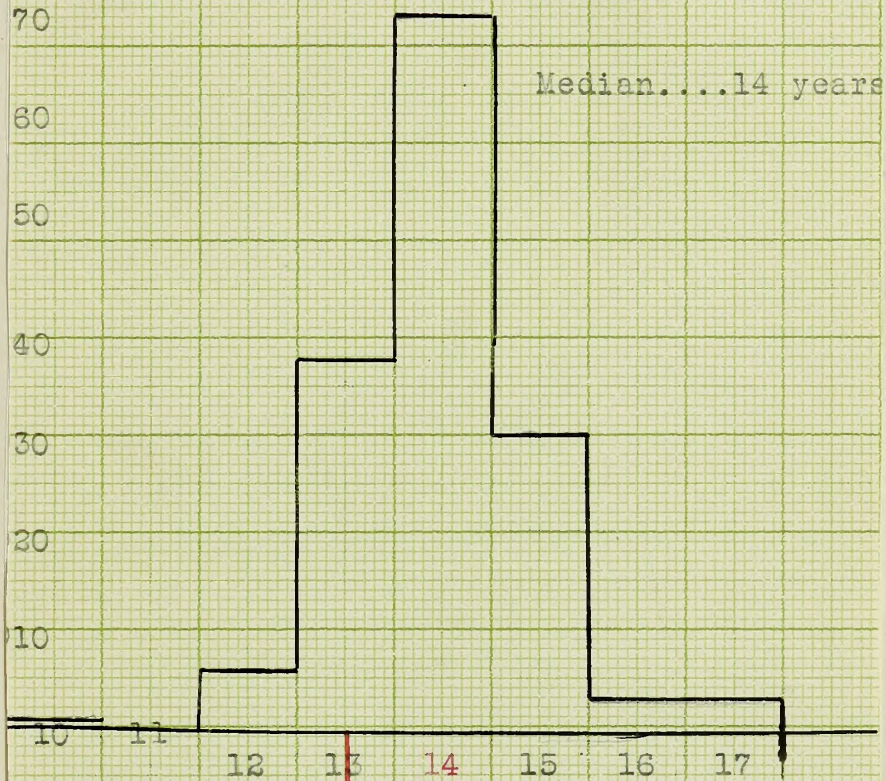
CHART XIXA COLLEGE PREPARATORY HIGH SCHOOLTHE FRESHMAN CLASSTHE SPREAD OF AGES.THE SPREAD OF INTELLIGENCE



CHART XIXA COLLEGE PREPARATORY HIGH SCHOOLTHE FRESHMAN CLASS



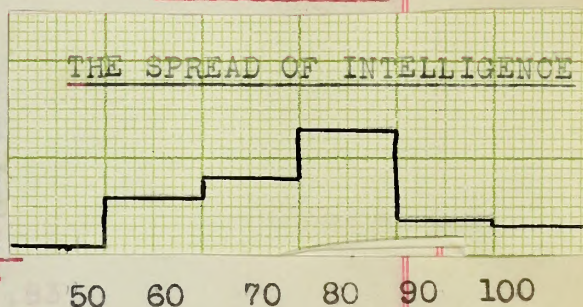
TABLE \*\*\*X.  
(Explaining Chart XX)  
AN INDUSTRIAL CLASS

GRADE VI

I. THE SPREAD OF INTELLIGENCE

Chart XX A

<u>I.Q.</u>	<u>FREQUENCY</u>
50--59	.....1
60--69	.....6
70--79	.....8
80--89	.....13
90--99	.....4
100--109	.....3
Total	<u>35</u>



Median.....81

Median of Grade VI.....95

First Quartile...73

Third Quartile...87

II. THE SPREAD OF AGE

<u>YEAR</u>	<u>FREQUENCY</u>
11.....	4
12.....	10
13.....	9
14.....	9
15.....	2
16.....	1
Total	<u>35</u>

Median age.....13 years

Median age of grade VI...11 years

Chart XX b

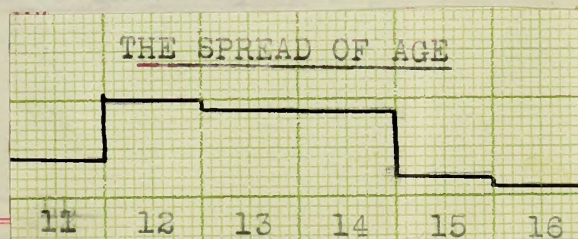


TABLE XX  
(Grade VI and Grade VII)  
AN INDUSTRIAL CLASS

GRADE VI

I. THE SPREAD OF INTELLIGENCE

Chart XX A

<u>I.Q.</u>	<u>FREQUENCY</u>
50--59	1
60--69	8
70--79	8
80--89	13
90--99	4
100-109	3
<u>Total</u>	<u>35</u>

Median.....81

Median of Grade VI.....82

First Quartile...73

Third Quartile...87

II. THE SPREAD OF AGE

<u>YEAR</u>	<u>FREQUENCY</u>
11	4
12	10
13	9
14	9
15	3
16	1
<u>Total</u>	<u>35</u>

Median age.....13 years

Median age of Grade VI...13 years

Chart XX B



TABLE XI\*\*\*\*EXPLAINING CHART XXIAN INDUSTRIAL CLASSGRADE VIIITHE SPREAD OF INTELLIGENCEI.Q. FREQUENCY

70--79.....	14
80--89.....	17
90--99.....	6
100-109.....	4
119-119.....	2
<u>Total</u>	<u>43</u>

Median.....83

Median of grade VIII....96

THE SPREAD OF AGEYEARS FREQUENCY

13.....	6
14.....	11
15.....	12
16.....	12
17.....	2
<u>Total</u>	<u>43</u>

Median age .....15 years

Median for grade....13 "

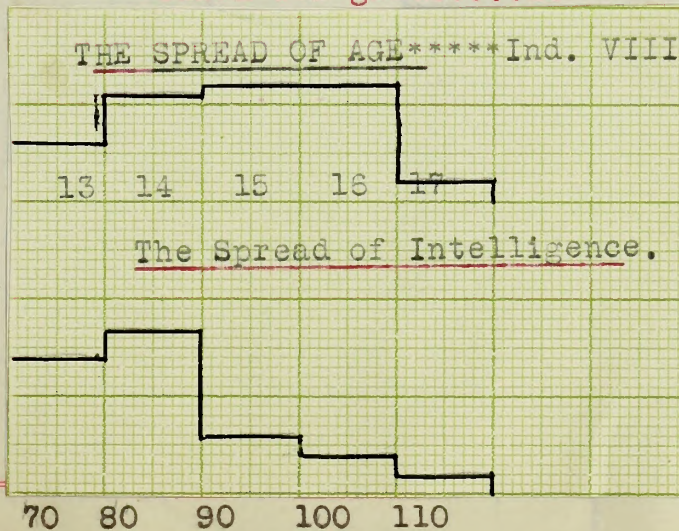


TABLE XI\*\*\*EXPLAINING CHART XII  
AN INDUSTRIAL CLASS  
GRADE VIII

THE SPREAD OF INTELLIGENCE

1.0. FREQUENCY

70--72	14
80--82	17
90--92	8
100--102	4
112--114	2
Total	45

Median.....82

Median of Grade VIII....82

THE SPREAD OF AGE

YEARS FREQUENCY

13	8
14	11
15	12
16	12
17	2
Total	45

Median age.....15 years

Median for grade....13



## THE SPREAD OF INTELLIGENCE.









**TABLE XII\*\*\*\* EXPLAINING CHART XXII.**  
**THE CONTINUATION SCHOOL**

**GIRLS**

**I. THE SPREAD OF INTELLIGENCE**

<u>I.Q.</u>	<u>FREQUENCY</u>
50--59.....	9
60--69.....	27
70--79.....	65
80--89.....	77
90--99.....	55
100-109.....	10
Total.....	243

Median.....83%

Below 85%.....63%

Above 110%.....0%

**BOYS**

**II. THE SPREAD OF INTELLIGENCE**

<u>I.Q.</u>	<u>FREQUENCY</u>
50--59.....	11
60--69.....	36
70--79.....	85
80--89.....	101
90--99.....	70
100-109.....	15
110-119.....	9
Total.....	327

Median.....86

Below 85.....60%

Above 110.....3%

TABLE XII\*\*\* EXPLAINING CHART XII.  
THE CONTINUATION SCHOOL

GIRLS

I. THE SPREAD OF INTELLIGENCE

I.Q.	FREQUENCY
50--55	9
55--60	27
60--65	65
65--70	77
70--75	85
75--80	10
80--85	100-105
Total	345
Median	63½
Below 65½	63½
Above 110½	0½

BOYS

II. THE SPREAD OF INTELLIGENCE

I.Q.	FREQUENCY
50--55	11
55--60	38
60--65	85
65--70	101
70--75	70
75--80	15
80--85	9
Total	387
Median	66
Below 85	60½
Above 110	3½



### CHAPTER III

#### A DIGRESSION.

#### THE APPARENT CAUSES OF SCHOOL LEAVING

Is it true that eliminations from school are the result of inability to do the work which the school demands, or are they the result of economic pressures of various sorts, or of some social condition such as a racial tradition of early school leaving? Since the state law requires the attendance at continuation school of employed minors between fourteen and sixteen, it is possible to obtain some light upon the situation through an investigation of the distribution of intelligence among this group. If these children have been eliminated because they were unable to do the academic work required of them, naturally we should expect to find the group median below the group median of those children who remained in school. If they have left because some social pressure had been brought to bear upon them to force them from school, against their own wishes and the wishes of the school, then we ought to find that this group contains an appreciable percentage of average and superior children.

The  
causes  
of  
school  
failure

A study of the table of intelligence distribution among the examined group of continuation

### CHAPTER III

#### A DISCUSSION

#### THE APPARENT CAUSES OF SCHOOL LEAVING

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A study of the table of intelligence distribution among the examined group of continuation



school pupils ( page 68) shows that the median intelligence for girls is 83, for boys 86, the average of both is 84.5, or 12 points lower than that of the eighth grade, and 11 points lower than the sixth grade-- that last point in the school system ( in Massachusetts) where the selective process is not intensified by school elimination. A further study reveals that 60% of all the girls and 63% of the boys are below the 85 level; none of the girls rate as superior and but 2% of the boys. 97% of the girls and 94% of boys fall below 100, the level of normal intelligence.

Continuation  
school  
levels

This would tend to prove that, in the fourteen to sixteen year old group few able students are forced out of school. This finding from a small group of 570 pupils is borne out by Hopkins\* in his study of 1200 continuation school pupils, distributed throughout Massachusetts. His medians vary slightly: 84 for girls, 89.5 for boys-- a difference that may be accounted for by the different test used.\*\* His conclusions are that even when other reasons are given for the drop-out, the factor of intelligence enters into the case, and judging from the evidence this would seem equally true in Boston.

Hopkins  
Study

Of the group over sixteen years very few reliable statistics are available. The record from one secondary school for a period of five months showed

The  
sixteen  
year  
group

\* Intelligence of Continuation School Children in Massachusetts. L. Thomas Hopkins, Harvard University Press, 1924.

\*\* Dearborn Intelligence Scale



Constitution  
of the  
school  
system

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How  
study

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\* Intelligence of Continuation School Pupils in Massachusetts. H. Thomas Hopkins, Harvard University Press, 1934.



the following:

Study of School Drop-outs more than Sixteen Years Old.

Distribution of Intelligence in Relation to School Success.

<u>I.Q.</u>	<u>Frequency</u>	<u>NO. Passing work credibly</u>	<u>NO. failing to pass work</u>
60--69.....	1.....	0.....	1
70--79.....	4.....	1.....	3
80--89.....	15.....	2.....	13
90--99.....	7.....	3.....	4
100-109.....	8.....	4.....	4
	<u>Total 35</u>	<u>10</u>	<u>28</u>

Median Intelligence.....85

Percent passing credibly....28%

" failing.....72%

The Relation of Age and Grade of Drop-out.

<u>Grade</u>	<u>Median Age of Grade</u>	<u>Median Age of Drop-out</u>	<u>No. of Drop-out</u>	<u>% of Failure</u>
XII	No drop-out			
XI	16	16	16	75
X	15	16	25	80
IX	14	15 **	8*	90

\* The grade IX group is small and drawn from a few schools which as yet have no junior high school organization. As a result the drop-out is small numerically but high proportionally, although the exact proportion could not be determined.

\*\* This is the median of the drop-out for the grade, but the group included here are over sixteen.

Note The totals in the two groups are not the same because 6 students for whom no I.Q. was recorded were included in the second group

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Study of School Drop-outs more than Sixteen Years Old.

Distribution of Intelligence in Relation to School Success.

<u>I. Q.</u>	<u>Frequency</u>	<u>No. Passing</u>	<u>No. Failing</u>
100-109	8	4	4
90-99	7	3	4
80-89	15	8	7
70-79	4	1	3
60-69	1	0	1
<u>Total</u>	<u>35</u>	<u>10</u>	<u>25</u>

Median Intelligence.....85  
Percent passing credibly....38%  
" failing.....72%

The Relation of Age and Grade of Drop-out.

<u>Grade</u>	<u>Median Age of Grade</u>	<u>Median Age of Drop-out</u>	<u>No. of Drop-out</u>	<u>% of Failure</u>
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This group is, of course, too small and too restricted to serve as a basis for any sweeping conclusions. Nevertheless, so far as this particular school is concerned it would seem to bear out the conclusions and the evidence of the continuation school. The eliminations from the over-sixteen group appear to be largely the result of failure to do the school work, with in many cases, an added complication arising in over-age.

It is less easy and less satisfactory to gather evidence as to what extent the traditional attitude of certain races acts as an agent of elimination. A study was made of a small group of Italian girls between fourteen and sixteen who had left school and were working in a candy factory. How far were they affected by this, their racial attitude toward extended education, and how far by inability to do school work?

The  
tradition  
al social  
attitude  
as a  
factor

A GROUP OF EMPLOYED ITALIAN GIRLS \*

TABLE XIII  
(explaining  
Cart XXIII)

Age 14--15

<u>I.Q.</u>	<u>Frequency</u>
50--59.....	3
60--69.....	8
70--79.....	12
80--89.....	16
90--99.....	5
Total	44

Median of group .....79.

\* These figures were gathered by Miss Evelyn O'Bryan of the Vocational Guidance Department and were used by her permission.

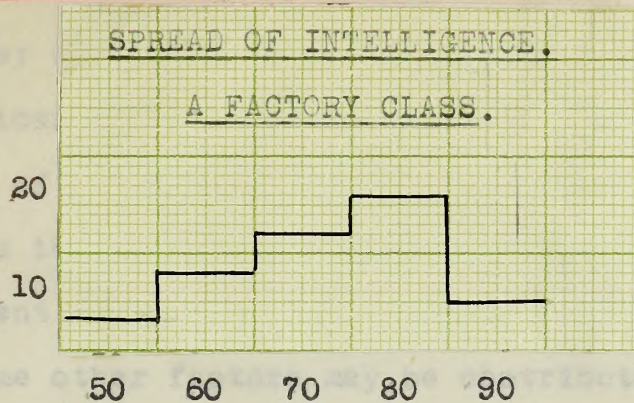
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A GROUP OF EMPLOYED ITALIAN GIRLS

<u>Age 14-16</u>		<u>TABLE XIII</u> <u>(Continued)</u> <u>(Part XIII)</u>
<u>Frequency</u>	<u>I. Q.</u>	
80--89.....3	80--89.....	
80--89.....8	80--89.....	
70--79.....12	70--79.....	
80--89.....12	80--89.....	
80--89.....5	80--89.....	
<u>Total 40</u>		
Median of group ..... 78		

These figures were gathered by Miss Evelyn O'Brien of the Vocational Guidance Department and were used by her permission.



CHART XXIII

While the chronological ages of these girls ranged from 14 to 16 their mental ages were:

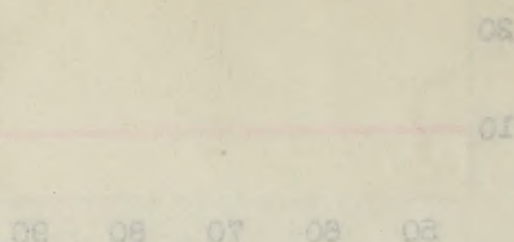
<u>Mental age</u>	<u>Frequency</u>
-------------------	------------------

8.....	1
9.....	4
10.....	5
11.....	14
12.....	8
13.....	8
14.....	2
	42

Median mental age....11 years

But 5% of the girls in this group were mentally and chronologically fourteen years old and able to do the work the school required. No generalization can be drawn from forty-two cases. Nevertheless it is fair to conclude that even though in this group the social factor may have been added pressure towards elimination, it was not the sole--nor perhaps-- the fundamental cause.

In spite of the fact that these studies in elimination are limited and deal with small



While the chronological ages of these girls ranged from 14 to 18 their mental ages were:

Mental age      Frequency

8	1
9	4
10	5
11	14
12	8
13	8
14	14

Median mental age... 11 years

But 8% of the girls in this group were mentally and chronologically fourteen years old and able to do the work the school required. No generalization can be drawn from forty-two cases. Nevertheless it is fair to conclude that even though in this group the social factor may have been added pressure towards elimination, it was not the sole--not perhaps--the fundamental cause.

In spite of the fact that these studies in elimination are limited and deal with small



## Summary

numbers, they do seem to point sharply to one thing of extreme significance for the teacher-counselor. In all the usual cases of school-leaving the underlying cause would appear to be inability to do such work as the school demands, and consequent failure and discouragement. With this fundamental, some other factors may be contributory, and supply the immediate cause of elimination.

Any child, therefore, who for any cause whatever, is failing in school work, becomes a problem in guidance.

Yet, without doubt the exploratory course for this particular purpose is the weakest link in that organization today. In an average school the teacher-counselor can get but little light through them upon the peculiar needs of her pupils, unless she happens to be counselor for none but slower pupils. The shop courses, as they are organized in the usual schools, tend to center about this selected group. Not that, in itself, this is not an excellent thing since it gives to these less academically interested students a maximum of work they can do, and a minimum of that they are less able to compass. But this is not enough and it is decidedly not exploration for all pupils. Rather is it pre-vocational training for

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## PART II

### CHAPTER IV.

#### INTEREST AS A FACTOR IN GUIDANCE.

The problem of a counselor in a junior high school differs from that of the elementary school in that interest becomes a vital factor in guidance. The junior high school is that particular unit of the educational system where the child is led to discover his own interests and to test them out to his own satisfaction, through a series of try-out courses.

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The  
junior  
high  
school

## PART II

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a selected group and in a single line, and not for the many a pre-view of mechanical trades in general.

The junior high school counselor too frequently uses a kind of rule of thumb in advising about course selections: very bright pupils should elect a college course, pupils not so bright a commercial course, and scholastic failures a mechanic arts course. To be sure this rule has some foundation in fact, at least so far as the extremes are concerned. Students interested in academic subjects and conspicuously successful in them do tend to elect preparatory courses and go to college. Students not interested in the printed page are frequently successful with tangible objects. On the other hand this rule is too absolutely committed to the proposition that intelligence is the sole index of vocational success to be a safe guide for the teacher-counselor. If this were true then--to be specific -- in a junior high school a group taking the college course ought to do less well in a test of mechanical ability than students in a shop course in the same school,-- a course to which they were assigned because of their inability to cope with academic work.

The  
rule  
of  
thumb

In order to check upon this two groups of mechanics art boys in a junior high school and two groups of practical arts girls, and two academic classes, one distinctly college preparatory, the other com-



75  
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mercial were given the National Intelligence Test, Form A, and the Stenquist Mechanical Aptitude Test, and the results of these tabulated and correlated with each other, and with the teacher's marks upon the individual's school work.

The results of these tests were as follows:

### BOYS SHOPS.

Number of cases tested	-----	60
Correlation between Nat. Int. and Sten.	-----	0
" " " " Marks	-----	.3
" " Sten. " "	-----	0

### GIRLS SHOPS.

Number of cases tested	-----	61
Correlation between Nat. Int. and Sten.	-----	.3
" " " " Marks	-----	.3
" " Sten. " "	-----	.3

### ACADEMIC GROUPS.

(Boys and Girls)

Number of cases tested	-----	67
Correlation between Nat. Int. and Sten.	-----	.1
(boys---.2 girls ----.3)		
" " " " Marks	-----	.7
" " Sten. " "	-----	.7

several were given the National Intelligence Test, Form  
 1, and the Stanford Mechanical Aptitude Test, and the re-  
 sults of these tabulated and correlated with each other,  
 and with the teacher's marks upon the individual's school  
 work.

The results of these tests were as

follows:

BOYS GROUPS

Number of cases tested	80
Correlation between Nat. Int. and Stan.	0
" " " " Marks	.3
" " Stan.	0

GIRLS GROUPS

Number of cases tested	81
Correlation between Nat. Int. and Stan.	.3
" " " " Marks	.3
" " Stan.	.3

ACADEMIC GROUPS

(Boys and Girls)

Number of cases tested	87
Correlation between Nat. Int. and Stan.	.1
(Boys) Girls	.3
" " Marks	.7
" " Stan.	.7



TABLE XIVA BOYS SHOP.

<u>Place in National</u>	<u>Place in Stenquist</u>	<u>Place by Teacher's Mark</u>
1	16	C
2		
3		
4		
5	13	C
6		
7		
8		
9		
10	23	A
11		
12		
13		
14		
15	30	B
16		
17		
18		
19		
20	5	A
21		
22		
23		
24		
25	24	B
26		
27		
28		
29		
30	4	C

Correlation between National and Stenquist

0

TABLE XIV

## A BOYS SHOP

Place in National	Place in Standard	Place by Teacher's Mark
1	18	C
2		
3		
4		
5	13	C
6		
7		
8		
9		
10	23	A
11		
12		
13		
14		
15	30	B
16		
17		
18		
19		
20	5	A
21		
22		
23		
24		
25	24	B
26		
27		
28		
29		
30	4	C

Correlation between National and Standard

0



TABLE XV

A GIRLS SHOP

<u>Place in</u> <u>National</u>	<u>Place in</u> <u>Stenquist</u>	<u>Place by</u> <u>Teacher's Mark</u>
1	23	B
2		
3		
4		
5	21	C
6		
7		
8		
9		
10	9	B
11		
12		
13		
14		
15	10	A
16		
17		
18		
19		
20	6	C
21		
22		
23		
24	24	C
25		
26		
27		
28		
29		
30	28	C

TABLE IV

A GIRLS SHOP

<u>place in</u>	<u>place in</u>	<u>place by</u>
<u>National</u>	<u>Standard</u>	<u>Teacher's</u>
1	23	2
2		
3		
4		
5	21	0
6		
7		
8		
9		
10	2	2
11		
12		
13		
14		
15	10	4
16		
17		
18		
19		
20	2	0
21		
22		
23		
24		
25	24	0
26		
27		
28		
29		
30	28	0



TABLE XVI  
A BOYS SHOP.

<u>Place in</u> <u>National</u>	<u>Place in</u> <u>Stenquist</u>	<u>Place by</u> <u>Teacher's Mark</u>
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	
11	11	
12	12	
13	13	
14	14	
15	15	
16	16	
17	17	
18	18	
19	19	
20	20	
21	21	
22	22	
23	23	
24	24	
25	25	
26	26	
27	27	
28	28	
29	29	
30	30	

```
graph LR; N1[1] --- S1[1]; N2[2] --- S2[2]; N3[3] --- S3[2]; N4[4] --- S4[2]; N5[5] --- S5[2]; N6[6] --- S6[2]; N7[7] --- S7[2]; N8[8] --- S8[2]; N9[9] --- S9[2]; N10[10] --- S10[2]; N11[11] --- S11[2]; N12[12] --- S12[2]; N13[13] --- S13[2]; N14[14] --- S14[2]; N15[15] --- S15[2]; N16[16] --- S16[2]; N17[17] --- S17[2]; N18[18] --- S18[2]; N19[19] --- S19[2]; N20[20] --- S20[2]; N21[21] --- S21[2]; N22[22] --- S22[2]; N23[23] --- S23[2]; N24[24] --- S24[2]; N25[25] --- S25[2]; N26[26] --- S26[2]; N27[27] --- S27[2]; N28[28] --- S28[2]; N29[29] --- S29[2]; N30[30] --- S30[2];
```

TABLE XI  
1913-1914

Place of  
Birth

Place of  
Death

Age at  
Death

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30



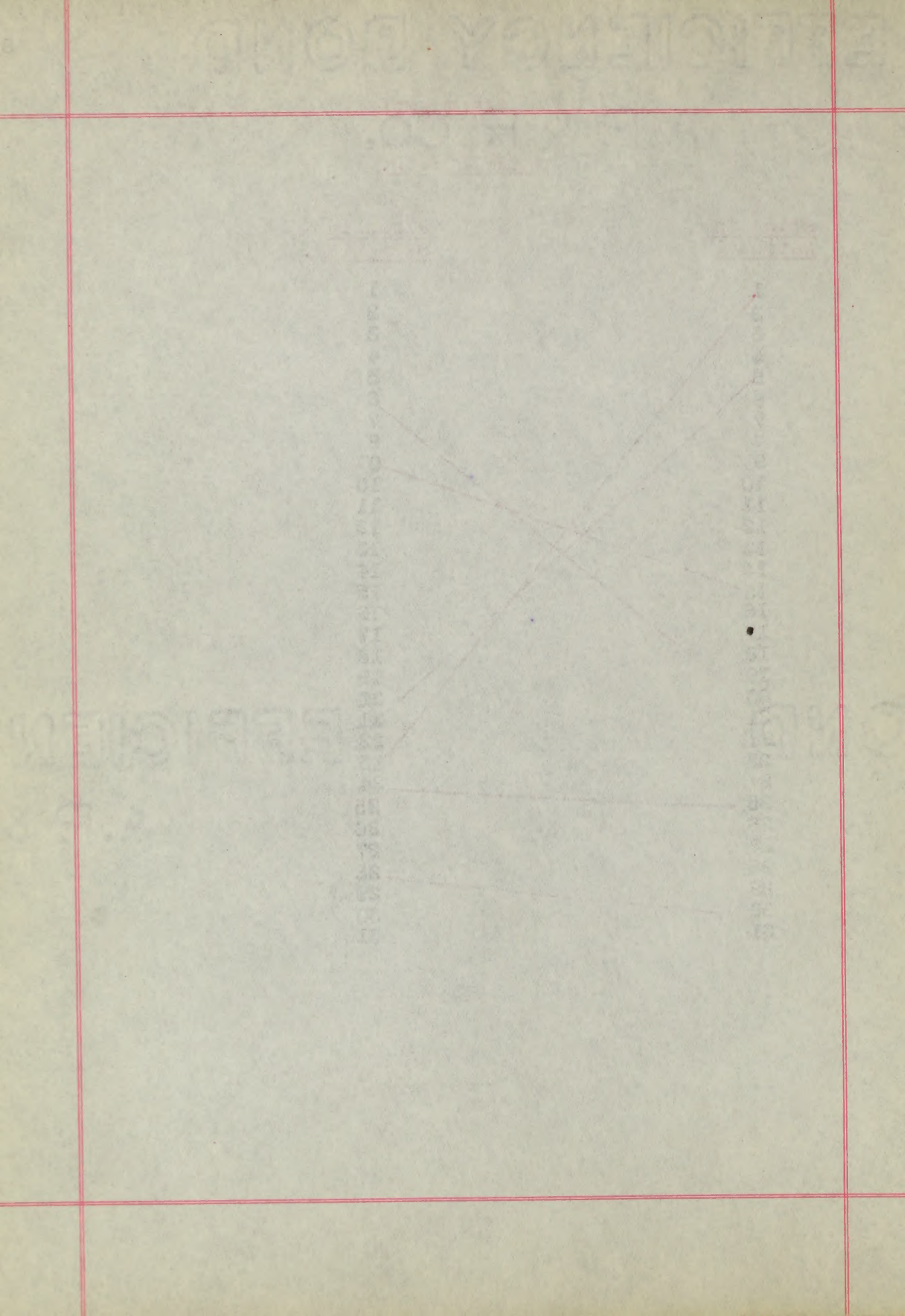
TABLE XVIII

A GIRLS SHOP.

Place in  
National

Place in  
Stenquist.

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31





From these correlations or rather lack of correlation it would seem that this current classroom practice has little justification in fact. Before reaching any conclusion, however, some further investigations are necessary. The next step is a checking up of mechanical aptitudes on the lower levels of intelligence, and of the intelligence levels of those falling in the upper and lower Stenquist quartiles.

TABLE XIX\*\*\*EXPLAINING CHART XXIV  
THE LOWER LEVELS OF INTELLIGENCE.

85 and below

Number of cases	below 85	No.	%
" " "	in upper quartile of Stenquist	70	100
" " "	" lower " " "	20	28
		20	28
Total at extremities		140	56%
" " "	normal in mechanical ability	30	44%

TABLE XX\*\* \*EXPLAINING CHART XXV  
THE STENQUIST TEST

The Upper Quartile

Number of cases	No.	%
	103	100
I.Q. above 110.....	19	18%
I.Q. below 85 .....	19	18%
Total at extremities.....		38 36%
Number of cases normal in intelligence.....	65	64%

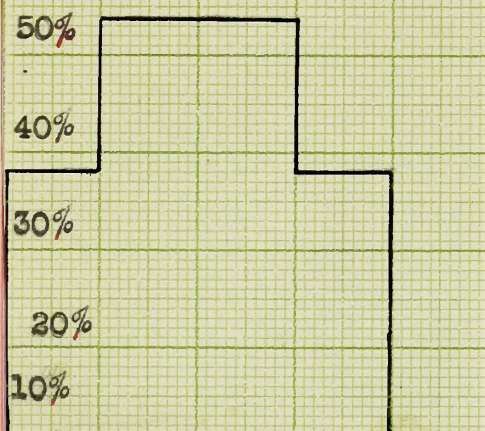
The Lower Quartile.

Number of cases	103	100%
I.Q. above 110.....	13	12%
I.Q. below 85.....	21	19%
Total at extremities .....		34 31%
Number of cases normal in intelligence.....	69	69%





# THE LOWER LEVELS OF INTELLIGENCE.



1st quart. Middle quart. 3rd quart.

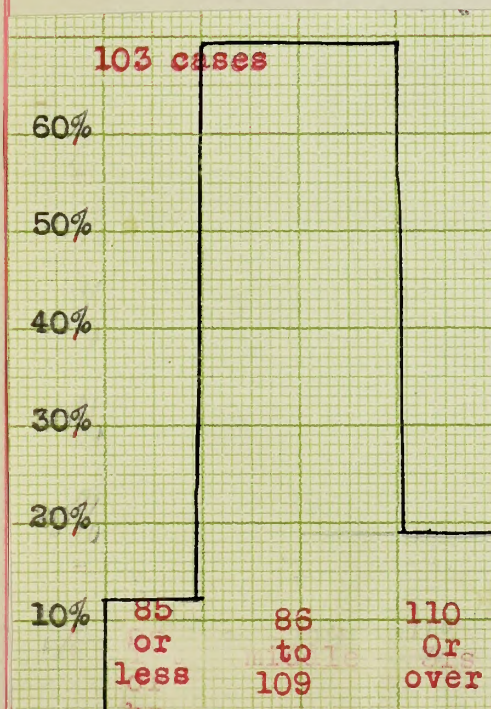
CHART XXIV

## THE STENQUIST TEST

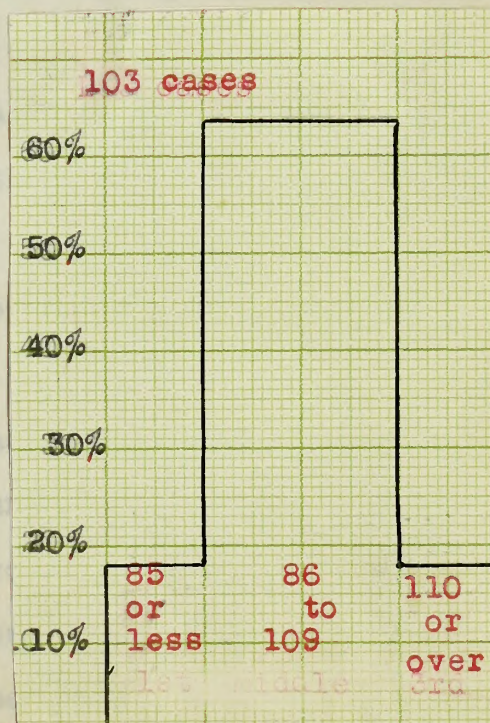
The Lower Quartile

The Third Quartile

CHART XXV (A&B)



A



B



CHART XIV

1st Middle 3 to  
Quart. Quart.

THE STENOGRAPHIC TEST

The Lower Quartile  
CHART XIV (A2B)  
The Third Quartile



From the tables several things of extreme significance to the teacher-counselor are apparent at once:

1. The seventy cases of less than normal intelligence distribute themselves in all quartiles of the Stenquist scores, with as many showing extreme mechanical aptitude as show little. The largest proportion are in the group of average mechanical aptitude. Of the group, therefore, who have little ability to do abstract work, 72% are average or better than average in mechanical ability.

The answer as to what to do with our slow pupils seems to be to continue to do as we are doing: that is, give them opportunities in mechanic arts classes to do that work for which they have average or better than average ability.

2. Of the group who are distributed in the upper quartile of mechanical ability, there are as many of superior intelligence as of inferior intelligence, but the bulk of the high scores is made by pupils of average intelligence.

For the teacher-counselor this fact is extremely significant. It means that in advising pupils upon course selection intelligence can not be taken as the sole guide. Of the pupils who secured the highest scores 82% are found in the average or better than average group.

Conclusions  
alone

From the tables several things of extreme significance to the teacher-counselor are apparent at once:

1. The seventy cases of less than normal intelligence distribute themselves in all quartiles of the aptitude scores, with as many showing extreme mechanical aptitude as show little. The largest proportion are in the group of average mechanical aptitude. Of the group, therefore, who have little ability to do abstract work, 75% are average or better than average in mechanical ability.

The answer as to what to do with our slow pupils seems to be to continue to do as we are doing: that is, give them opportunities in mechanical arts classes to do that work for which they have average or better than average ability.

2. Of the group who are distributed in the upper quartile of mechanical ability, there are as many of superior intelligence as of inferior intelligence, but the bulk of the high scores is made by pupils of average intelligence.

For the teacher-counselor this fact is extremely significant. It means that in advising pupils upon career selection intelligence can not be taken as the sole guide. Of the pupils who secured the highest scores 65% are found in the average or better than average group.



3. Of the group who are distributed in the lower quartile, the larger number of failures are not to be found among those of superior or inferior intelligence, but among those of average ability. Here the failure is not serious, but is, notwithstanding significant. This is the group which in all probability will prefer to deal with academic work rather than mechanical, whether that be along the lines of lathes, engines, or office machines.

From these findings the teacher - counselor can reach one conclusion, if no more. Intelligence, alone is not a safe guide to follow in assisting a child to decide upon a course or a career. Other factors, of which interest is the chief, enter into the problem. These, therefore, must be revealed and studied, whether they may be reached through the curriculum or through outside activities.

On the subject of interest, Thorndyke has this to say: "Interests are also shown to be symptomatic, to a very great extent, of present and future capacity and ability. Either because one likes what he can do well or because one gives zeal and effort to what he likes, or because interest and ability are both symptoms of some fundamental feature of the individual's original nature, or because of the combined action of all three of these factors, interest and ability are bound very close

Thorndyke on  
interest

8. Of the group who are distributed in the lower quartile, the larger number of failures are not to be found among those of superior or inferior intelligence, but among those of average ability. Here the failure is not serious, but is, notwithstanding significant. This is the group which in all probability will prefer to deal with academic work rather than mechanical, whether that be along the lines of letters, engines, or office machines. From these findings the teacher-counselor can reach one conclusion, if no more. Intelligence alone is not a safe guide to follow in assisting a child to decide upon a course or a career. Other factors of which interest is the chief, enter into the problem. These, therefore, must be revealed and studied, whether they may be reached through the curriculum or through outside activities.

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The bond is so close that either may be used as a symptom of the other, almost as well as for itself." \*

To discover whether or not such a situation as that revealed by the Stenquist Test carried over into a life activity, a study was made of the work records of the group of Italian factory girls mentioned a few pages back. Their work was rated by the factory forewoman from the standpoint of factory efficiency and general satisfactoriness. The rating scale was Very good, good, fair, poor. The objective of this study was to attempt to find what relation existed between their mental ability and their grade of work.

A further study of a factory group.

TABLE XX.  
A STUDY OF A FACTORY GROUP.

1. The group rated "Very Good" in work.

<u>I.Q.</u>	<u>Frequency</u>
50--59.....	1
60--69.....	3
70--79.....	5
80--89.....	6
90--99.....	1
	<u>Total 16</u>

Median.... 78

2. The group rated "Good" in work.

<u>I.Q.</u>	<u>Frequency</u>
60--69.....	3
70--79.....	7
80--89.....	5
90--99.....	4
	<u>Total 19</u>

Median 80

\* The Permanence of Interests and Their Relation to Abilities. Edward L. Thorndike. Popular Science Monthly.

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TABLE XX.  
A STUDY OF A FACTORY GROUP.

1. The group rated "Very Good" in work.

Frequency	
50--55	1
55--60	3
60--65	5
65--70	6
70--75	1
Total	16
Median	62

2. The group rated "Good" in work.

Frequency	
50--55	3
55--60	7
60--65	5
65--70	4
Total	19
Median	57



3. The group rated "Fair" in work.

<u>I.Q.</u>	<u>Frequency</u>
50--59.....	1
60--69.....	2
70--79.....	2
Total	5

Median .....71

4. The group rated "Poor" in work.

One with an I.Q. of 85

On the whole, little if any correlation was found between a successful work record-- this type of factory work required much manual dexterity-- and intelligence.

Table XXV

THE ELECTRICAL CLASS

Number of cases examined.....	41
Median Intelligence.....	86
Median mechanical score.....	70

Mean.....	51
Correlation between Trade school standing and I.Q. --	.1
" " " " " Stenquist .....	.4
" " " " " Grammar School---	.3
" " " " " I.Q. and Stenquist .....	.3

3. The group rated "Fair" in work.

<u>I.Q. Frequency</u>	
50--59	1
60--69	2
70--79	2
<u>Total</u>	

Median ..... 71

4. The group rated "Poor" in work.

One with an I.Q. of 85

On the whole, little if any correla-

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type of factory work required much manual dexterity--and  
intelligence.



## CHAPTER V.

### A STUDY OF INTEREST AND ABILITIES

#### IN A

#### BOYS TRADE SCHOOL

This chapter is a sort of parenthesis by way of comment upon a question growing out of the last. The lack of correlations found in the pre-vocational shop classes of a junior high school naturally raised the question: What of the vocational classes in a trade school? To answer this four types of classes: electrical, woodworking, automechanics, and printing, were tested for intelligence and mechanical aptitudes. They were graded according to trade school and grammar school standing.

The  
classes  
studied

#### Table XXI

#### THE ELECTRICAL CLASS

Number of cases examined.....	41
Median Intelligence.....	86
Median mechanical score.....	70

<u>Note.</u> The median score for junior high school was.....		51
Correlation between Trade school standing and I.Q. --		.12
" " " " " Stenquist, -----		.44
" " " " " Grammar School---		.26
" " I.Q. and Stenquist. ---		.31





### THE WOODWORKING CLASS

Number of cases examined.....	39
Median intelligence.....	85
Median mechanical aptitude score.....	66
Correlation between Trade School standing and I.Q. *****	.15
"            "            "            "            "            Stenquist--*****	.41
"            "            "            "            "            Grammar School *	.46
"            "            I.Q. and Stenquist score*****	.32

### THE AUTOMECHANICS CLASS

Number of cases examined.....	25
Median intelligence .....	81
Median mechanical aptitude score.....	81
Correlation between Trade School standing and I.Q.*****	.21
"            "            "            "            "            Stenquist*****	.17
"            "            "            "            "            Grammar School**	.53
"            "            I.Q. and Stenquist score*****	.57

### THE PRINTING CLASS

Number of cases examined.....	31
Median Intelligence.....	81
Median mechanical aptitude scores.....	56
Correlation between Trade School Standing and I.Q.*****	.62
"            "            "            "            "            Stenquist*****	.28
"            "            "            "            "            Grammar School*	.85
"            "            I.Q. and Stenquist score*****	0

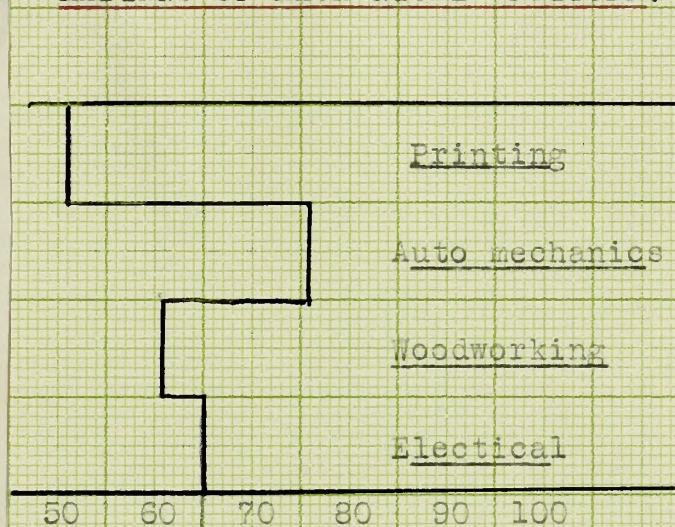




CHART XXVI      The correlations while significant  
in themselves are not as high as one might expect, nor are they  
the correlations one would naturally expect. However, they  
are interesting.

A BOYS TRADE SCHOOL.

MEDIANS OF MECHANICAL APTITUDE.



MEDIAN OF INTELLIGENCE.

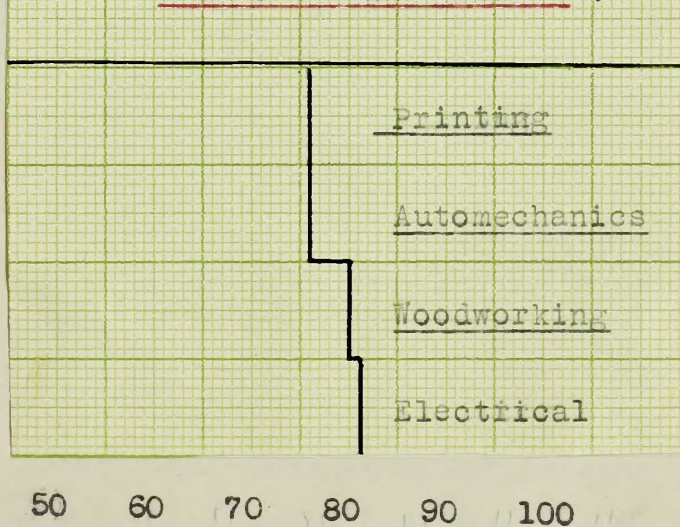


CHART XXVI

A BOYS TRADE SCHOOL.

50 60 70 80 90 100



These correlations while significant in themselves are not uniformly significant, nor are they the correlations one would naturally expect. However, they are interesting rather than valid for the groups are too small to be the basis of any definite conclusions.

ity of its students represents the vocational phase of their educational preparation. This is true, not only of those courses-- commercial or industrial-- with which the term is usually associated, but in an equal sense is it true that the college preparatory course is vocational for those students who take it with college entrance as their objective. These secondary courses would seem to be doubly motivated: first by the student's expressed interest which led him to select a particular course; and second, by that vocational goal which-- through adequate preparation-- he hopes to attain.

Entrance upon a life career is one of the major objectives of education, and that specific one upon which a program of guidance concentrates. The ultimate test of the success or failure of that program is the number of students who, through the schools, are guided to discover their vocational interest, receive training for it, and finally enter upon it. Entrance upon a life career for which education prepared the way must, in the last analysis be the check upon the efficiency of any such

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## CHAPTER VI.

### THE SECONDARY SCHOOL

The secondary school for the majority of its students represents the vocational phase of their educational preparation. This is true, not only of those courses-- commercial or industrial-- with which the term is usually associated, but in an equal sense is it true that the college preparatory course is vocational for those students who take it with college entrance as their objective. These secondary courses would seem to be doubly motivated: first by the student's expressed interest which led him to select a particular course; and second, by that vocational goal which-- through adequate preparation-- he hopes to attain.

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The  
secondary  
school  
is  
vocational

## CHAPTER VI

### THE SECONDARY SCHOOL

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program.

Such a conception of guidance implies a school system administered to hold all students until the completion of some training course, rather than one which functions through its selective power. It is futile for an elementary school to bend its energies to discover and check potential drop-out because of failure, or for an intermediate school to discover and test abilities, if the secondary school is not going to co-operate in the program, also. It is as vital for a senior high school as for a grammar school to locate its potential failures and drop-outs, and far more urgently needed, since these students--once beyond the age of compulsory school attendance -- are free to withdraw whenever they wish.

An intensive study of several hundreds of seniors in high school was made to get light upon certain of these points:

The  
problem

1. Who are those students who are potential drop-outs?
2. Is the college preparatory group a distinctly superior one intellectually?
3. To what extent is the high school vocational, that is, how many of its graduates enter upon the careers for which they were trained? As can be readily seen, the answer to this question lies beyond the high school

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and must be found in the working experiences of young people in the field of occupation. The data for this portion of the study was collected from classes who had been graduated and were at work. The class selected was one which had been out of high school for five years.

TABLE XXII  
(explaining Chart XXVII)  
SECTION I. \* A STUDY OF HIGH SCHOOL

SENIORS.

A BOYS CLASS.

1. The Distribution of Intelligence.

<u>I.Q.</u>	<u>Frequency</u>
60---69.....	2
70---79.....	10
80---89.....	54
90---99.....	80
100---109.....	117
110---119.....	72
120---129.....	41
130---139.....	10
140---149.....	4
150---159.....	3
160---169.....	1
170---179.....	1
<u>Total 385</u>	

Median.....103

First Quartile...95

Third Quartile..113

Below 85.....9%

Above 110.....34%

and must be found in the working experiences of young people in the field of occupation. The data for this portion of the study was collected from classes who had been graduated and were at work. The class selected was one which had been out of high school for five years.

TABLE XVII  
(Explaining Chart XVII)  
SECTION I. - A STUDY OF HIGH SCHOOL

SENIORS

A BOYS CLASS.

I. The Distribution of Intelligence.

I.Q. Frequency

80--88	3
70--79	10
80--89	24
80--89	80
100--109	117
110--119	78
120--129	41
130--139	10
140--149	4
150--159	3
160--169	1
170--179	1
<hr/>	
Total	388

Median.....105

First Quartile...95

Third Quartile...113

Below 85.....82

Above 110.....94



CHART XXVII

THE DISTRIBUTION OF INTELLIGENCE  
OF A  
CLASS OF SENIOR BOYS IN HIGH SCHOOL.

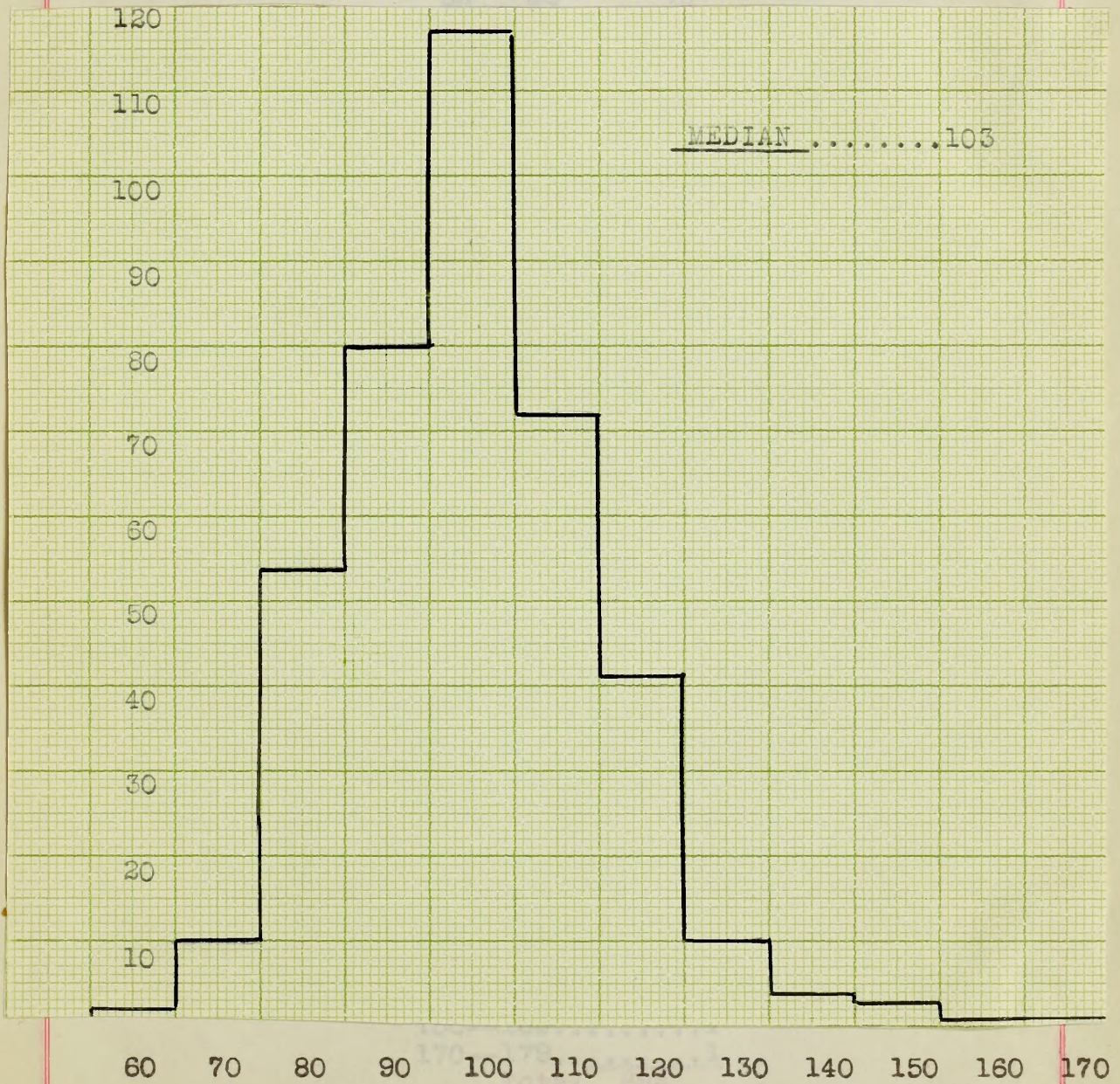




CHART XXV  
THE DISTRIBUTION OF INTELLIGENCE  
OF A  
CLASS OF SENIOR BOYS IN HIGH SCHOOL.

100  
90  
80  
70  
60  
50  
40  
30  
20  
10  
0

100 90 80 70 60 50 40 30 20 10 0



TABLE XXIII \*\*EXPLAINING CHART XXVIIIA GIRLS CLASS2 The Distribution of Intelligence.I.Q.      Frequency

70---79.....	9
80---89.....	38
90---99.....	74
100---109.....	113
110---119.....	46
120---129.....	17
130---139.....	1
140---149.....	1

---

Total 299

Median.....102

First Quartile....92

Third Quartile...107

Below 85.....10%

Above 110.....22%

COMBINED GROUPS. ( 1&2)3. The Distribution of Intelligence.I.Q.      Frequency

60---69.....	2
70---79.....	19
80---89.....	92
90---99.....	154
100---109.....	230
110---119.....	118
120---129.....	58
130---139.....	11
140---149.....	5
150---159.....	3
160---169.....	1
170---179.....	1

---

Total 684

## TABLE XXIII - EXPLAINING CHART XXVIII

## A GIRLS CLASS

## 2. The Distribution of Intelligence.

## I.Q. Frequency

70-79	9
80-89	38
90-99	74
100-109	113
110-119	48
120-129	17
130-139	1
140-149	1
Total	291

Median.....103

First Quartile.....93

Third Quartile.....107

Below 88.....107

Above 110.....32

## COMBINED GROUPS. (123)

## 3. The Distribution of Intelligence.

## I.Q. Frequency

80-89	3
90-99	19
100-109	93
110-119	154
120-129	230
130-139	118
140-149	38
150-159	11
160-169	2
170-179	3
180-189	1
190-199	1
Total	654

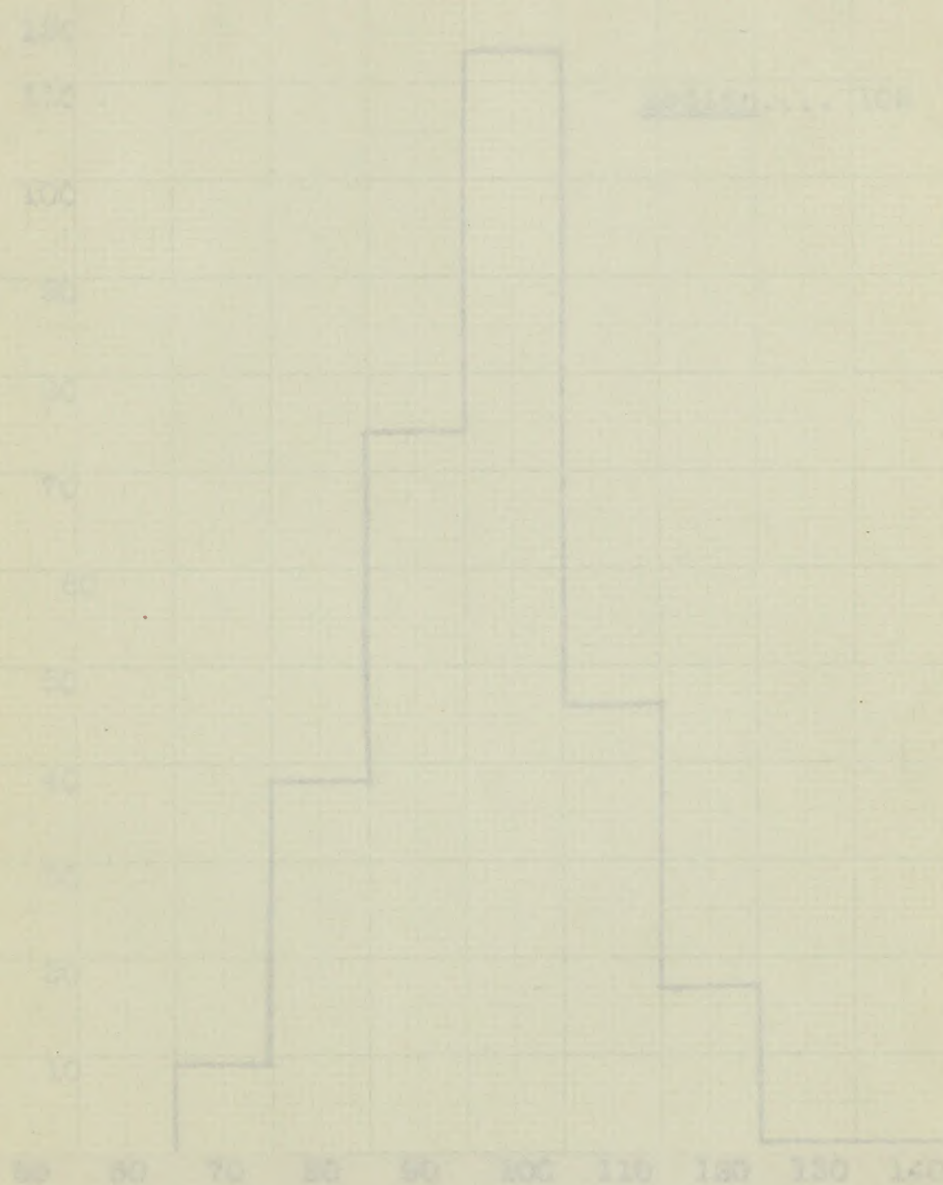


Median .....102.5

Below 85.....9%

Above 110.....30%

Normal.....61%



Median ..... 102.5  
 Below 92 ..... 92  
 Above 110 ..... 110  
 Normal ..... 81.5



CHART XXVIII  
THE DISTRIBUTION OF INTELLIGENCE  
A GIRLS SCHOOL

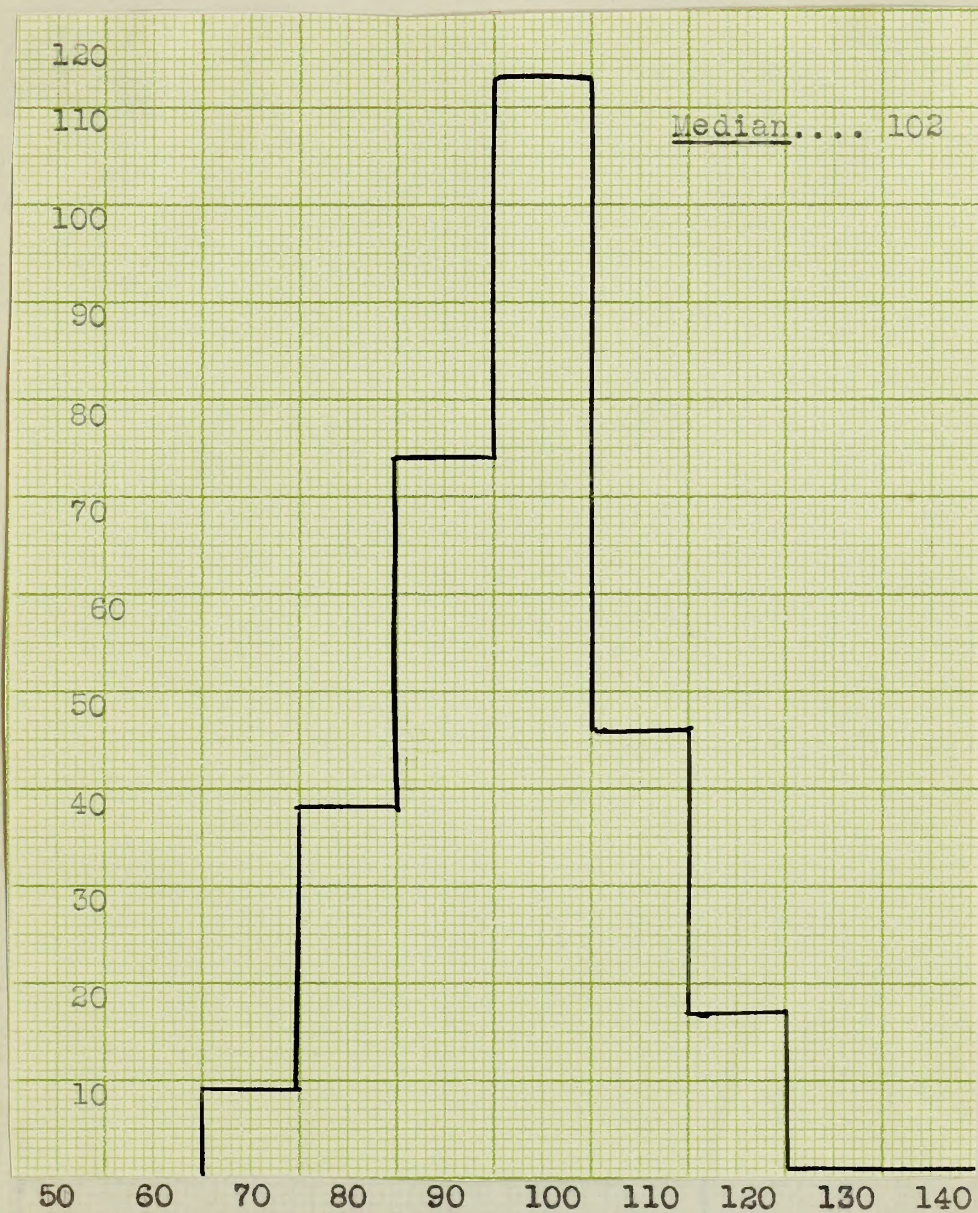


CHART XXVIITHE DISTRIBUTION OF INTELLIGENCEA GIRLS SCHOOL

25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----



CHART XXIX  
DISTRIBUTION OF INTELLIGENCE

COMBINED CLASSES.

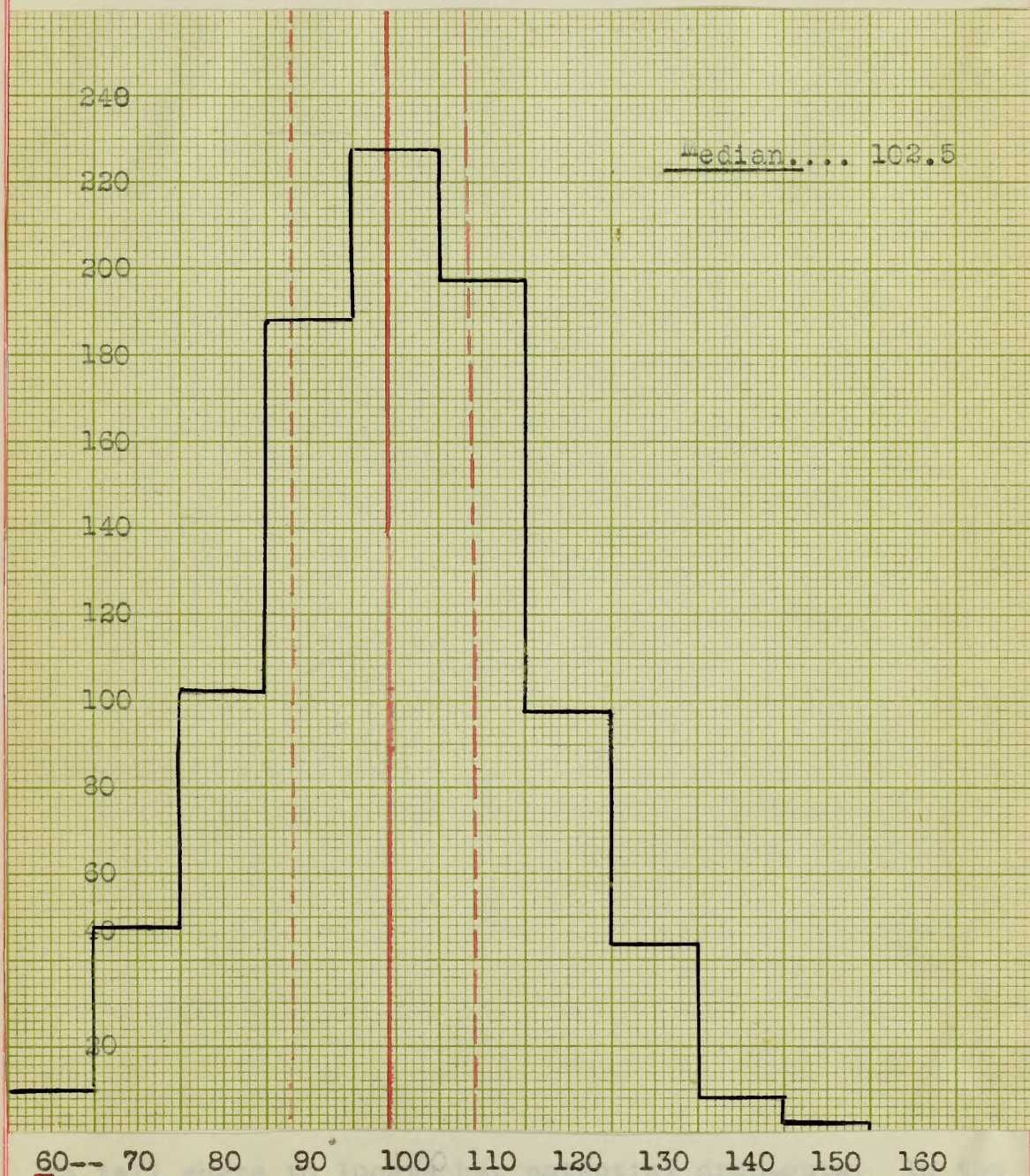




CHART XXIX  
DISTRIBUTION OF INTELLIGENCE

COMBINED CLASSES.

80-- 70 80 90 100 110 120 130 140 150 160



**Table XXIV**  
 ( See Chart XVIII--P 55a)  
**THE DISTRIBUTION OF AGES**

At graduation.

Years      Frequency

16	.....11
17	.....296
18	.....238
19	.....32
20	.....5
21	.....2

**Median.....17 years**

**Acceleration.....2 %**

2 years	.....0
1 "	.....2%

**Retardation.....48%**

1 year	.....41%
2 "	.....5%
3 "	.....2
4 "	.....2

**Normal.....50%**

COMPARISON

Grade VIII

Grade XII

Percent of Retardation

Percent of retardation

**Total.....50%**

**Total....48%**

1 year	.....26%
2 "	.....16
3 "	.....7
4 or more	.....1

1 year	.....41%
2 "	.....5
3 or more	.....2

From these tables it is not difficult for any teacher-counselor, even a novice in guidance, to tell where to locate her potential drop-outs. In the

TABLE XVII  
(See Chart XVII-P. 286)  
THE DISTRIBUTION OF AGES

At Graduation

Years      Frequency

16	11
17	128
18	238
19	32
20	2
21	2

Less than 17 years

Acceleration..... 2%

2 years	0
1 "	2

Retardation..... 4%

1 year	41
2 "	8
3 "	3
4 "	4

Normal..... 50%

COMPARISON

Grade XII

Grade VIII

Percent of Retardation

Percent of Retardation

Total..... 4%

Total..... 20%

1 year	41
2 "	8
3 or more	3

1 year	28
2 "	18
3 "	7
4 or more	1

From these tables it is not diffi-

cult for any teacher-counselor, even a novice in guidance,  
to tell where to locate her potential drop-outs. In the



senior high school it would seem that over-age is a dangerous condition, and that the student retarded more than a single year tends toward elimination. While there is little change from Grade VIII to Grade XII in the total amount of retardation, there is a very significant redistribution of it. On the one hand the one-year retarded group increases from 26% in Grade VIII to 41% in Grade XII; on the other the two-year-and-more group decreases from 24% among the grammar school graduates to 7% among secondary graduates.

When in addition to over-age the counselor finds evidence of lower than average intelligence levels, she can be fairly certain that scholastic failure will result in drop-out, unless by skilful guidance she can stave off disaster.

This condition, therefore, has extreme significance for:

1. The junior high school counselor whose function it is to guide in choice of secondary school and choice of course.
2. The high school counselor, whose duty it is to locate those pupils who, unguided, are headed for scholastic failure, discouragement, and then, the inevitable elimination.
3. For counselors in every unit of

senior high school it would seem that over-age is a serious condition, and that the student retarded more than a single year tends toward elimination. While there is little change from Grade VIII to Grade XII in the total amount of retardation, there is a very significant redistribution of it. On the one hand the one-year retarded group increases from 28% in Grade VIII to 41% in Grade XII; on the other the two-year-and-more group decreases from 34% among the grammar school graduates to 7% among secondary graduates.

When in addition to over-age the counselor finds evidence of lower than average intelligence levels, she can be fairly certain that scholastic failure will result in drop-out, unless by skilful guidance she can avert off disaster.

This condition, therefore, has extreme significance for:

1. The Junior high school counselor whose function it is to guide in choice of secondary school and choice of course.
2. The high school counselor, whose duty it is to locate those pupils who, unguided, are headed for scholastic failure, discouragement, and then, the inevitable elimination.
3. For counselors in every unit of



school organization who ought to regard as special problems in guidance, requiring special help in readjustment, and special follow-up, every student either over-age for his grade, or of low intelligence level.

## SECTION II    COURSE GROUPS

The purpose of this particular study was to gain some idea of the make-up of the particular course groups. It was taken for granted that in the larger number of cases pupils who had persisted in a course up through the senior year of high school had some vocational interest reached through the course-- that is, that pupils in the commercial groups intended to enter business, in the college group, some more academic field. It was then decided to determine whether on the whole there was any very distinct difference in the mental levels in either course, or whether the groups ran quite evenly in mental abilities and differed solely in interest. Was this interest an individual thing springing from subjective things such as temperament or personal bias, or did it spring from a very real difference in ability to handle academic or abstract problems?

The course groups chosen for this study comprised four senior classes, three of them from girls high schools, and the fourth from a large boys

Course  
groups

The  
problem

school organization who ought to regard as special problems in guidance, requiring special help in readjustment, and special follow-up, every student either over-age for his grade, or of low intelligence level.

## SECTION II COURSE GROUPS

The purpose of this particular study was to gain some idea of the make-up of the particular course groups. It was taken for granted that in the last year number of cases pupils who had persisted in a course up through the senior year of high school had some vocational interest reached through the course--that is, that pupils in the commercial groups intended to enter business in the college group, some more academic field. It was then decided to determine whether on the whole there was any very distinct difference in the mental levels in either course, or whether the groups ran quite evenly in mental abilities and differed solely in interest. Was this interest an individual thing springing from subjective things such as temperament or personal bias, or did it spring from a very real difference in ability to handle academic or abstract problems?

The course groups chosen for this study comprised four senior classes, three of them from girls high schools, and the fourth from a large boys



school. The results were as follows:

CLASS A. (GIRLS)

Number of pupils in the study.....	283
" " " " " commercial course.....	219 (78%)
" " " " " college " .....	64 (22%)

Median

Commercial course.....	95
College " .....	105
Median of combined groups.....	99

Below 90

Commercial group .....	23%
College " .....	6%

Above 110

Commercial group.....	15%
College " .....	40%

Normal

Commercial group.....	62%
College group.....	54%

CLASS B. (GIRLS)

Number of pupils in the study.....	299
" " " " " commercial course.....	206 (69%)
" " " " " college " .....	93 (31%)

Median

Commercial course.....	100
College course.....	106
Median of combined groups.....	102

Below 90

Commercial course.....	20%
College course.....	4%





Above 110

Commercial course.....14%  
 College course .....38%

Normal

Commercial course.....66%  
 College course.....60%

CLASS C (GIRLS)

Number of pupils in the study .....230  
 " " " " commercial course.....143 (62%)  
 " " " " college course.....87 (38%)

Median

Commercial course.....98  
 College course.....110  
 Combined groups.....103

Below 90

Commercial course.....26%  
 College course.....0

Above 110

Commercial course.....21%  
 College course.....52%

Normal

Commercial course.....53%  
 College course.....48%

CLASS D (BOYS)

Number of cases of pupils in the study.....386  
 " " pupils in the commercial course.....123 ( 32%)  
 " " " " college course.....263 (68%)

Medians

(see next page)





Medians

Commercial course.....100  
 College course .....105  
 Combined medians of both groups.....102.5

Below 90

Commercial course.....9%  
 College course.....8%

Below 110

Commercial course.....18%  
 College course.....41%

Normal

Commercial course.....73%  
 College course.....51%

SIGNIFICANT COMPARISONS1. A Comparison of the medians:A. Of the commercial course

Group A.....95  
 " B.....100  
 " C.....98  
 " D.....100

B. Of the college course

Group A.....105  
 " B.....108  
 " C.....110  
 " D.....105

C. Of the combined courses.

Group A.....99  
 " B.....102  
 " C.....103  
 " D.....103

Medians

Commercial course.....100  
 College course.....100  
 Combined medians of both groups.....100.5

Below 90

Commercial course.....25  
 College course.....25

Below 100

Commercial course.....100  
 College course.....100

Normal

Commercial course.....75  
 College course.....75

SIGNIFICANT COMPARISONS1. A Comparison of the medians:A. Of the commercial course

Group A.....98  
 ".....100  
 ".....98  
 ".....100

B. Of the college course

Group A.....100  
 ".....100  
 ".....100  
 ".....100

C. Of the combined courses

Group A.....98  
 ".....100  
 ".....100  
 ".....100



## 2.8 A Comparison of the percentages taking either course

### A. The commercial course.

Group A	.....	78%
" B	.....	69%
" C	.....	62%
" D	.....	32%
		<u>Average 60%</u>

### B. The college course

Group A	.....	22%
" B	.....	31%
" C	.....	38%
" D	.....	68%
		<u>Average 39%</u>

## 3. A comparison of the groups below 90

### Commercial course

Group A	.....	23%
" B	.....	20%
" C	.....	26%
" D	.....	9%
		<u>Average 20%</u>

### College course

Group A	.....	6%
" B	.....	4%
" C	.....	0
" D	.....	8%
		<u>Average 5%</u>

## 4. A comparison of the groups above 110

### Commercial group

Group A	.....	15%
" B	.....	14%
" C	.....	21%
" D	.....	18%
		<u>Average 17%</u>

### College group

Group A	.....	40%
" B	.....	36%
" C	.....	52%
" D	.....	41%
		<u>Average 42%</u>

## 5. A comparison of the normal groups.

### Commercial group

Group A	.....	62%
" B	.....	66%
" C	.....	53%
" D	.....	73%
		<u>Average 64%</u>

### College group

Group A	.....	54%
" B	.....	60%
" C	.....	48%
" D	.....	51%
		<u>Average 53%</u>

### 3. A comparison of the percentages taking either course

#### A. The commercial course.

Group A	.....	76%
" B	.....	83%
" C	.....	82%
" D	.....	73%
Average	80%	

#### B. The college course

Group A	.....	32%
" B	.....	31%
" C	.....	38%
" D	.....	88%
Average	39%	

### 4. A comparison of the groups below 30

#### Commercial course

Group A	.....	38%
" B	.....	30%
" C	.....	38%
" D	.....	9%
Average	30%	

#### College course

Group A	.....	6%
" B	.....	4%
" C	.....	0%
" D	.....	8%
Average	3%	

### 5. A comparison of the groups above 110

#### Commercial group

Group A	.....	15%
" B	.....	14%
" C	.....	31%
" D	.....	18%
Average	17%	

#### College group

Group A	.....	40%
" B	.....	36%
" C	.....	53%
" D	.....	41%
Average	42%	

### 6. A comparison of the normal groups.

#### Commercial group

Group A	.....	55%
" B	.....	80%
" C	.....	53%
" D	.....	73%
Average	64%	

#### College group

Group A	.....	54%
" B	.....	80%
" C	.....	48%
" D	.....	51%
Average	57%	

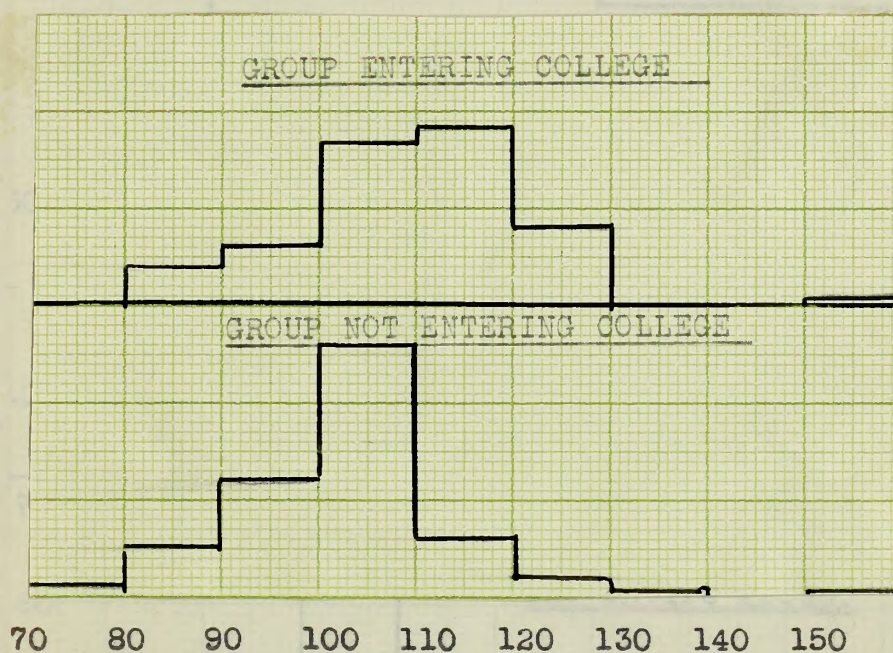


A TABLE OF COMPARISON OF COLLEGE GROUP

showing

COLLEGE ENTRANTS AND NON\*COLLEGE ENTRANTS

CHART XXX.



Group entering college

Median.....109

Group not entering college

Median.....103

A TABLE OF COMPARISON OF COLLEGE GROUPS

showing

COLLEGE ENTRANTS AND NON-COLLEGE ENTRANTS

CHART XXX.

70 80 90 100 110 120 130 140 150

Group entering college

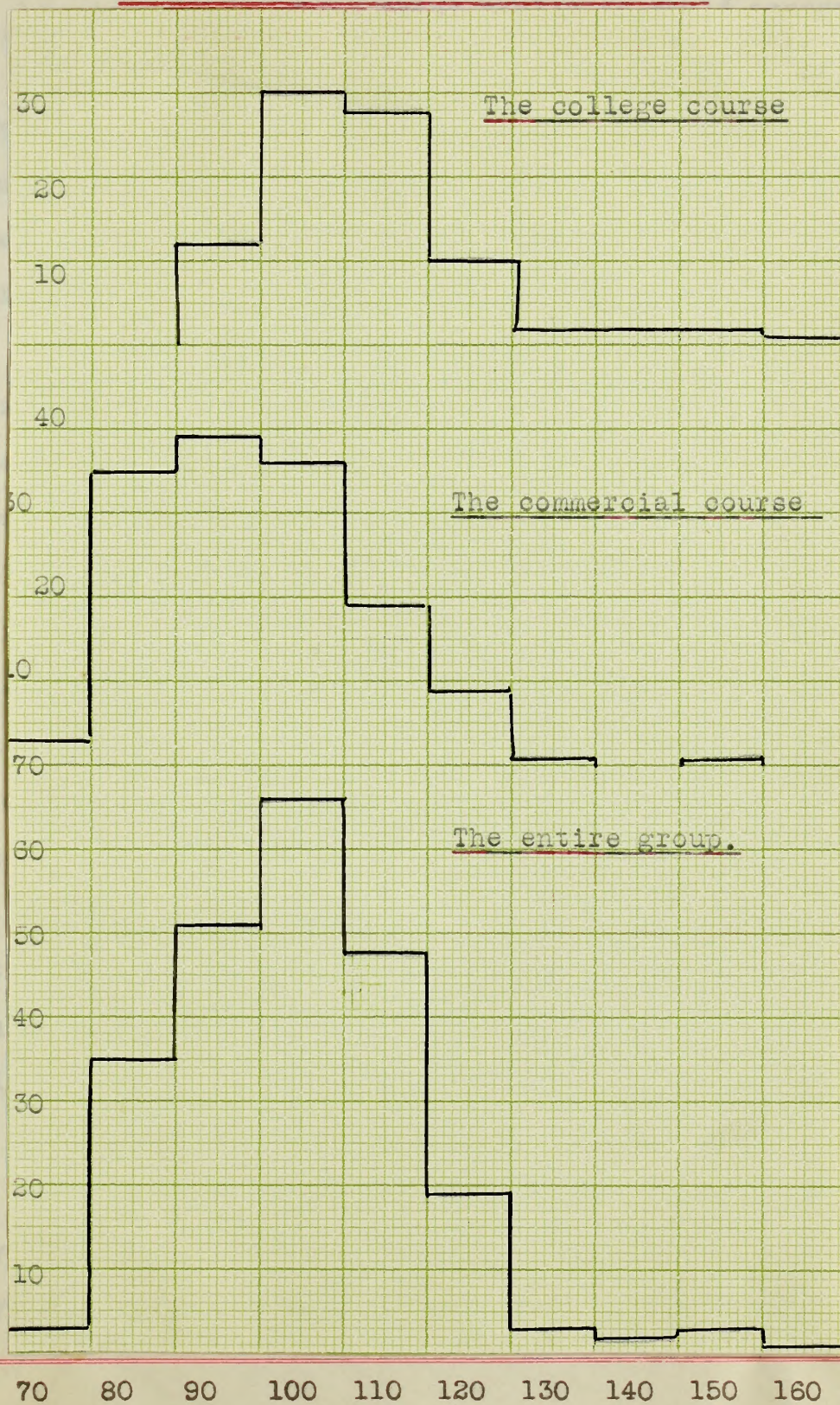
Median.....108

Group not entering college

Median.....102



## CHART XXXI

AN ANALYSIS OF A HIGH SCHOOL CLASS



AN ANALYSIS OF A HIGH SCHOOL CLASS

70	80	90	100	110	120	130	140	150	160
70	80	90	100	110	120	130	140	150	160



ConclusionsConclu-  
sions

From these tables it would appear that there is ground for the belief that the college preparatory course is highly selective upon the basis of abstract intelligence. The charts upon page 107 show that college entrance is an agency of still more refined selection.

What does this mean for the teacher-counselor? Shall she strive to turn into commercial or industrial courses those whose intelligence levels fall below the limits of possible college entrance? How far shall pupil interest be the basis of course selection and how far her own knowledge that he has but a slim chance of success? This would be a difficult question to answer were it not for one factor. Differences in degree of ability are accompanied also by differences in the type of interest expressed.

Children who are free to follow the dictates of their own choices are rarely problems for the counselor, because their interests are the outgrowth of their abilities and are within range of their capacity. The counselor's problems are two-fold: first those children whose parents force them into fields of work for which they have neither capacity nor interest: second, those very bright children for whom college entrance is not pos-

Conclusions

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sible because of such social factors as poverty, custom, or parental opposition. These children placed in courses not within the range of their interests are often scholastic failures and disciplinary problems, within school, and restless and dissatisfied workers in employment.

The problem of the counselor in dealing with such cases is to give these students such vocational training as will enable them to earn a livelihood, and such academic training as may make college entrance possible should such a chance present itself, or should these students decide to take training at a night college. The aim of every secondary school should be to keep open to these students doors of admission to schools of higher education and to encourage them to secure the academic training they are well qualified to take.

Intelligence levels should never be used to select pupils for courses, or as a mechanical device for counseling. They are at best suggestive rather than selective. Up to a certain point they are prognostic of success or failure, but the experienced counselor will take them as but one factor-- although an important one--- in course guidance. In cases of doubts she will subordinate them to pupil interests, should the two conflict.

able because of such social factors as poverty, custom, or parental opposition. These children placed in courses not within the range of their interests are often rebellious, fail, and disciplinary problems, within school, and restless and dissatisfied workers in employment.

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### III. THE PERMANENCE OF INTEREST.

One of the most vexed questions of the secondary school --one that seems to be perennial in its recurrence-- is that of the permanence of those vocational interests which students express, and toward which the school shapes its training. The answer to such a question must be sought, not solely in school records or school statistics, but in the histories of these students after they have left the class-room and entered upon employment.

The  
perma-  
nence of  
interest

Accordingly a follow-up study was made of two groups of 348 boys and 299\*girls, of the class which had graduated from school five years previously. The particular problem set up was to determine:

1. Whether there was any correlation between the courses pursued by pupils in high school and their vocational interests expressed just before graduation.
2. Whether there was any significant correlation between the vocational interests of students and the field of occupation entered.
3. Whether the vocational training received in school was put to definite vocational use.

From the summary of the answers to these questions it might be possible to determine how

\*  
Note. This is not the same class of 299 girls mentioned page 102. The similarity of numbers is a pure coincidence

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Accordingly a follow-up study was made of two groups of 348 boys and 339 girls, of the class which had graduated from school five years previously.

The particular problem set up was to determine:

1. Whether there was any correlation between the courses pursued by pupils in high school and their vocational interests expressed just before graduation.

2. Whether there was any significant correlation between the vocational interests of students and the field of occupation entered.

3. Whether the vocational training received in school was put to definite vocational use.

From the summary of the answers to these questions it might be possible to determine how

Note. This is not the same class of 339 girls mentioned page 168. The similarity of numbers is a pure coincidence.



effectively the secondary schools were preparing students for life, and how far a counselor might depend upon them to further her program of guidance.

The first study made was that of the distribution of students among the courses of the school. \*

TABLE XXV EXPLAINING CHART XXXII

TABLE OF STUDENT DISTRIBUTION IN COURSES.

<u>Course</u>	<u>Boys</u>	<u>Girls</u>	<u>Difference</u>
College .....	36%	12%	24%
Commercial.....	20%	72%	-52%
Technical.....	24%	0	24%
Normal.....	0	9%	9%
General.....	20%	6%	14%

The outstanding feature of this chart is the utter disproportion of the number of girls who pursue the commercial course. Practically three-fourths of all girls in this particular senior class are registered in this section, while the other fourth is distributed among those preparing for college, for normal school, or for some other school or line of work not definitely commercial. Among the boys the situation is quite different. The college preparatory group is the largest, with the technical course-- intended primarily to prepare for admission to such technical colleges as Massachusetts Institute of Technology-- second. The actual number of boys who are contemplating college entrance

\* Note. No I.Q.'s for these students were available, as no intelligence of any sort had ever been given to the group.



effectively the secondary schools were preparing students for life, and how far a counselor might depend upon them to further her program of guidance.

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the distribution of students among the courses of the

### TABLE XXV EXPLAINING CHART XXII

#### TABLE OF STUDENT DISTRIBUTION IN COURSES

<u>Courses</u>	<u>Boys</u>	<u>Girls</u>	<u>Difference</u>
College	384	124	260
Commercial	204	724	-520
Technical	244	0	244
Normal	0	84	84
General	204	84	120

The outstanding feature of this chart is the utter disproportion of the number of girls who pursue the commercial course. Practically three-fourths of all girls in this particular senior class are registered in this section, while the other fourth is distributed among those preparing for college, for normal school, or for some other school or line of work not definitely commercial. Among the boys the situation is quite different. The college preparatory group is the largest, with the technical course--intended primarily to prepare for admission to such technical colleges as Massachusetts Institute of Technology--second. The actual number of boys who are contemplating college entrance is 1,044, for those students were available, as no intelligence of any sort had been given to the group.



is not 36%, therefore, but 60% ( college course 36% plus 24% preparing for technical colleges). These reasons beneath this difference among boys and girls of expectancy of education beyond secondary school are not important -- in this instance-- except as they affect the teacher-counselor in her program of guidance. In most professions, today, with the single exception of teaching, the road of the woman entrant is beset with difficulties. The weight of tradition is strongly against her, and this knowledge reacts upon the girl to some extent. Far more important, it tends to influence parents to discourage their daughters from embarking upon such careers, and sometimes to refuse to pay for any further education directed at such an objective.

Unfortunately it is impossible to show a chart of the vocational interests which either group expressed when they entered high school as freshman almost ten years ago. At that time nothing was done to guide the entering students-- or to qualify this statement a little-- no organized guidance for which some person or some group was definitely responsible was available for the entering class.

The chart and the table upon pages 114 and 115 record the vocational interests of the group during their senior year, when it must be admitted, many



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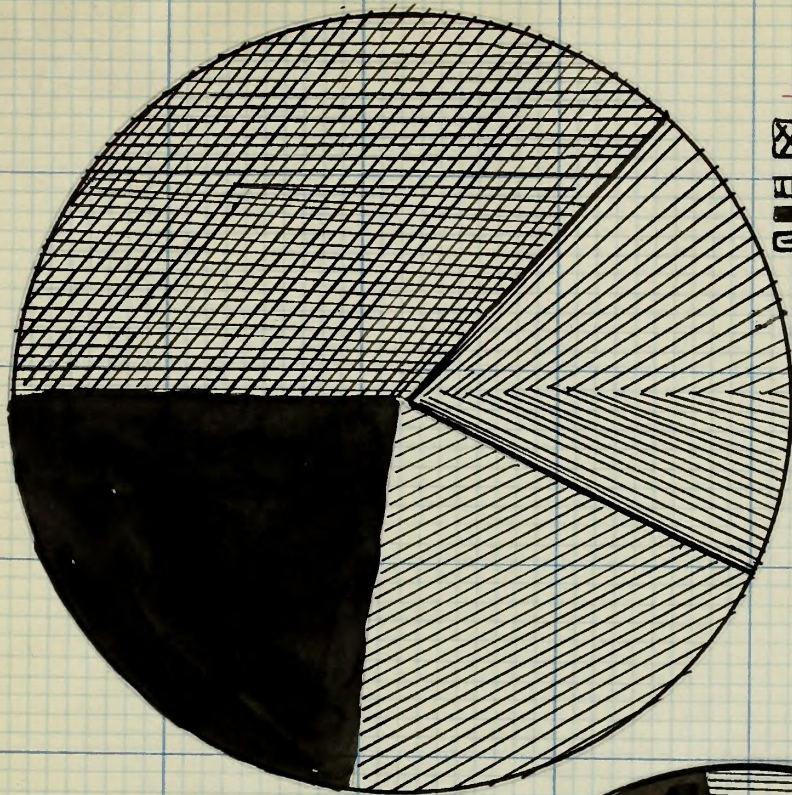
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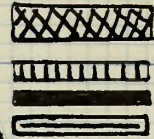


HIGH SCHOOL

CHART XXXII

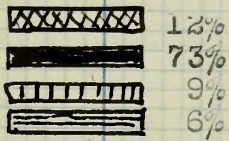


Boys.

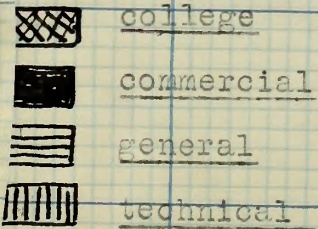
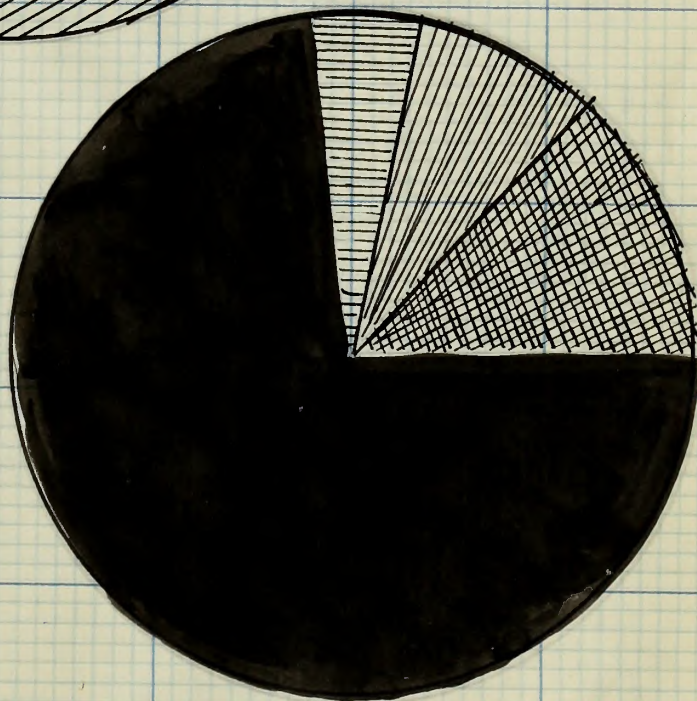


36%  
24%  
20%  
20%

Girls.



12%  
73%  
9%  
6%



college  
commercial  
general  
technical







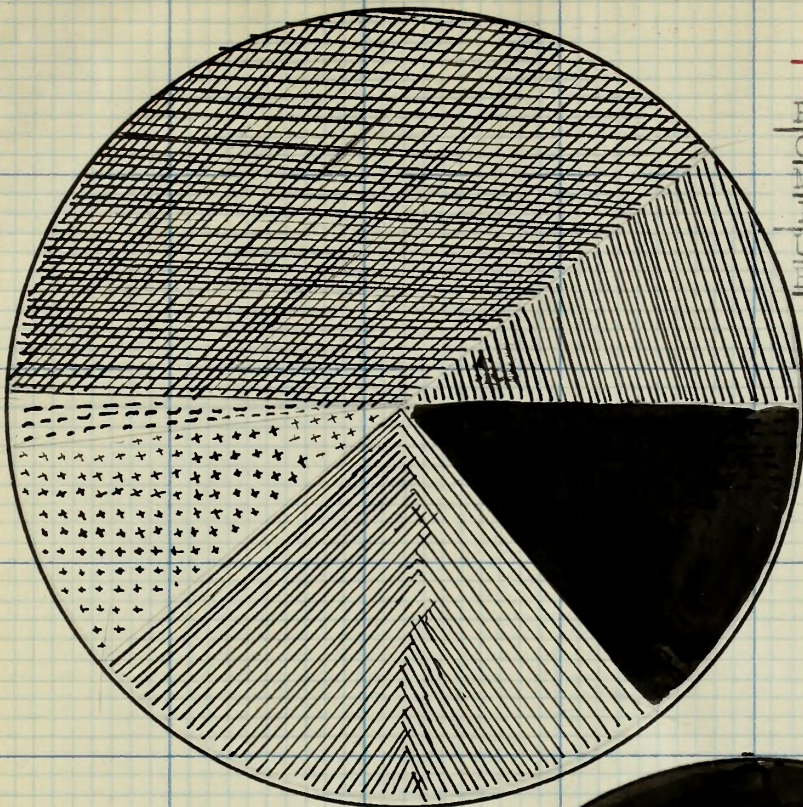
**CHART XXXIII**  
**VOCATIONAL PREFERENCES**  
**of**

114

**HIGH SCHOOL SENIORS.**


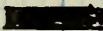
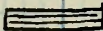
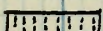

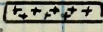

Boys.

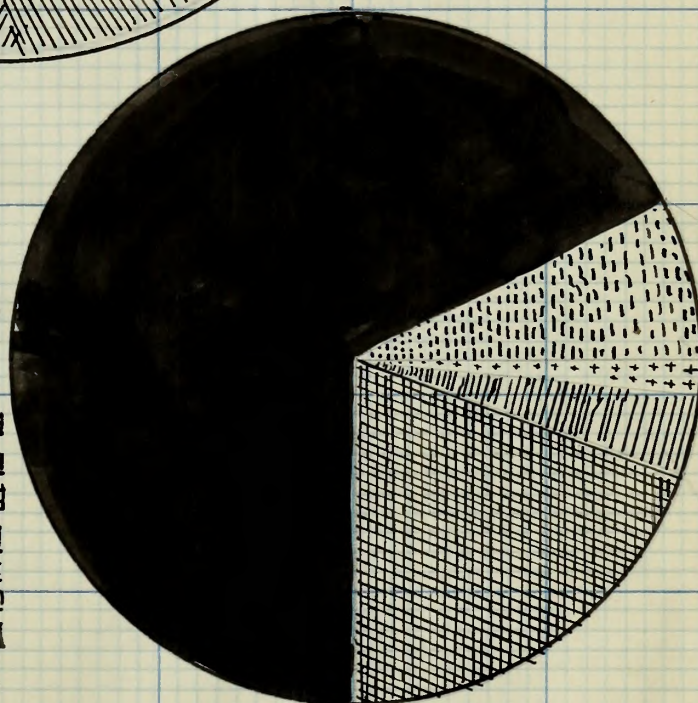
<u>Professional.</u>	30%
<u>Commercial</u>	14%
<u>Mercantile</u>	9%
<u>Industrial</u>	7%
<u>Undecided</u>	10%
<u>Business</u>	30%



Girls

<u>Professional</u>	20%
<u>Commercial</u>	67
<u>Mercantile</u>	1%
<u>Undecided</u>	4%
<u>Further education</u>	8%

<u>Professional</u>	
<u>Commercial</u>	
<u>Mercantile</u>	
<u>Industrial</u>	
<u>Business</u>	
<u>Undecided</u>	
<u>Further Education</u>	





UNITED STATES  
NATIONAL BUREAU OF  
INVESTIGATION  
WASHINGTON, D. C.  
JULY 1941



had made up their minds to accept the inevitable and enter those fields of work which represented not their own preference but which seemed to be dictated to them by expediency. Nevertheless, a glance at the table of girls and the table of boys upon page 111 and the ones which follow, will show there is a significant correlation\* between choices expressed and courses pursued.

TABLE OF VOCATIONAL PREFERENCES  
of  
HIGH SCHOOL SENIOR CLASSES.

<u>Preference</u>	<u>Boys</u>	<u>Girls</u>	<u>Difference</u>
1. Professional...	30%	20%	10%
2. Business (executive)...	30%	0	30%
3. Commercial (clerical)...	14%	87%	-73%
4. Mercantile (selling)...	9%	1%	8%
5. Industrial.....	7%	0	7%
Undecided.....	10%	4%	6%
6. Further education	0	8%	-8%

These tables reflect the wider interests, the wider opportunities, the wider ambitions of boys. No girl sets down any executive position as the goal of her ambition, but 30% of the parallel group of boys are definitely shaping their careers toward that end. Without doubt this variation in vocational ambition can not be set solely as the result of such social situations as prejudice and tradition. They are rather inherent in the knowledge that for the one group participation in the

\* This will be dealt with in greater detail on pages 118 and 119

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TABLE OF VOCATIONAL PREFERENCES  
of  
HIGH SCHOOL SENIOR CLASSES.

	Preference	Boys	Girls	Difference
1.	Professional	30%	30%	.....10%
2.	Business			
	(executive)	30%	0	.....20%
3.	Commercial			
	(clerical)	14%	87%	.....-73%
4.	Mercantile			
	(selling)	2%	1%	.....8%
5.	Industrial	7%	0	.....7%
	Undecided	10%	4%	.....6%
6.	Further education	0	8%	.....-8%

These tables reflect the wider in-  
terests, the wider opportunities, the wider ambitions of  
boys. No girl sets down any executive position as the  
goal of her ambition, but 30% of the parallel group of  
boys are definitely shaping their careers toward that end.  
Without doubt this variation in vocational ambition can  
not be set solely as the result of such social situations  
as prejudice and tradition. They are rather inherent in  
the knowledge that for the one group participation in the

and 112



world of work shall continue throughout the active years of life, while for the other it is rather a brief episode between school and married life. This has an extreme significance for the vocational counselor. However heartily she is in sympathy with wider opportunities for women in education and in business, she must recognize that both parents and employers have grounds to consider girls poor educational and executive risks.

The table which follows and the chart upon page 117 show the distribution of this same senior class five years after they have left school and gone into the field of employment-- sometimes into the one of their expressed interest and sometimes not.

TABLE XXVI\*\*EXPLAINING CHART XXXIV  
DISTRIBUTION OF A SENIOR CLASS

after

FIVE YEARS.

<u>Occupational Field</u>	<u>Boys</u>	<u>Girls</u>	<u>Difference</u>
1. Professions.....	33%	15%	18%
2. Commercial..... (clerical)	18%	51%	-33%
3. Mercantile..... (selling)	16%	3%	13%
4. Business..... (executive)	16%	1%	15%
5. Industrial.....	9%	0	9%
6. Married.....	?	20%	
7. Can not locate.....	0	6%	
8. At home.....	0	2%	
9. Proprietors.....	9%	1%	8%



world of work itself continues throughout the active years of life, while for the other it is rather a brief episode between school and married life. This has an extreme significance for the vocational counselor. However heartily she is in sympathy with wider opportunities for women in education and in business, she must recognize that both parents and employers have grounds to consider girls poor educationally and executive risks.

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TABLE XXVI--EXPLAINING CHART XXIV  
DISTRIBUTION OF A SENIOR CLASS

After

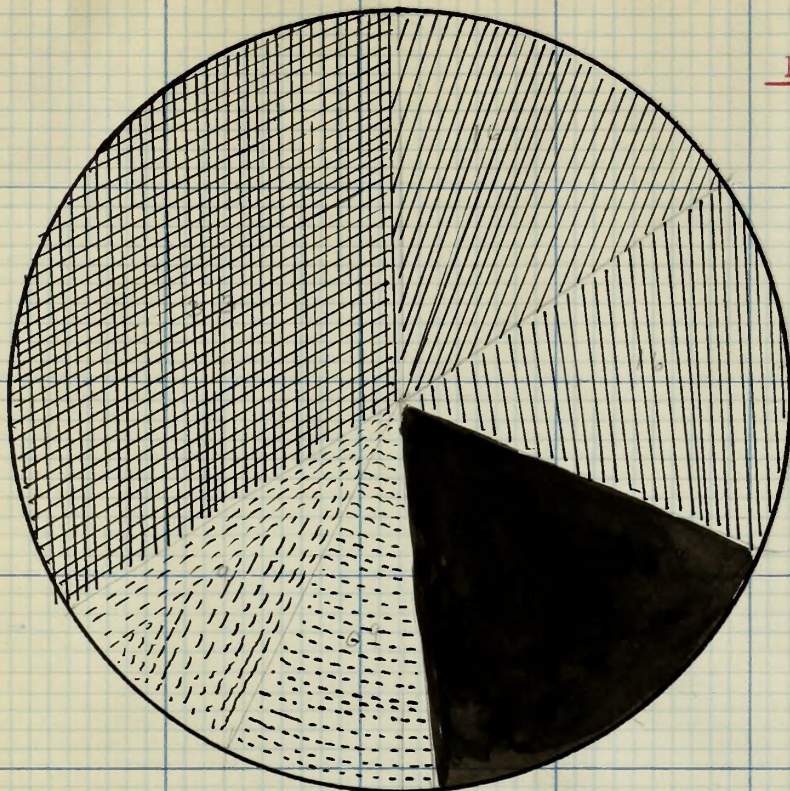
FIVE YEARS.









	<u>Occupational Field</u>	<u>Boys</u>	<u>Girls</u>	<u>Difference</u>
1.	Professions.....	33%	15%	18%
2.	Commercial.....	18%	51%	-33%
	( clerical )			
3.	Mercantile.....	18%	3%	15%
	( selling )			
4.	Business.....	15%	1%	14%
	( executive )			
5.	Industrial.....	2%	0	2%
6.	Married.....	7	20%	
7.	Can not locate.....	0	8%	
8.	At home.....	0	2%	
9.	Dropouts.....	2%	1%	1%

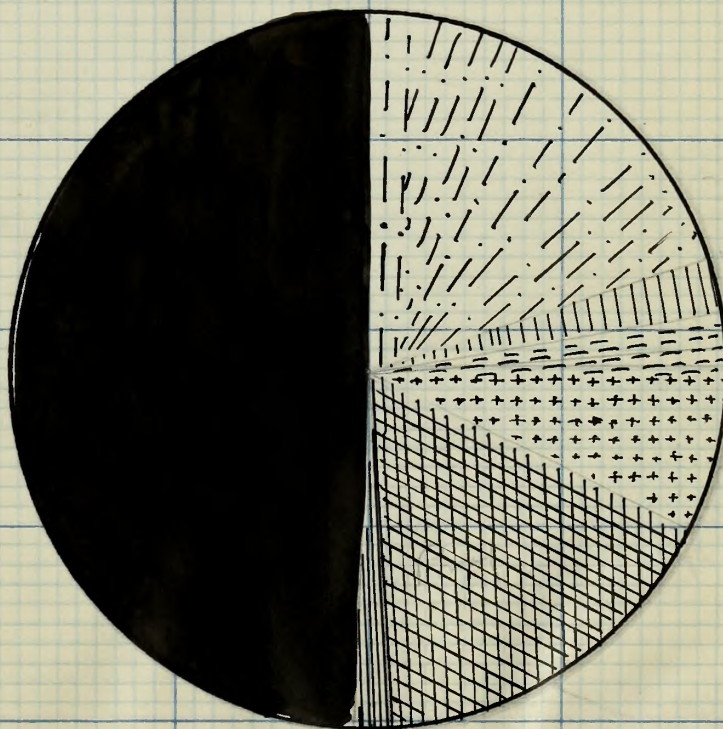


FIVE YEARS AFTER GRADUATION

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Boys.Girls

Professional	
Commercial	
Mercantile	
Business	
Married	
Proprietors	
Unknown	
Industrial	





FIVE YEARS AFTER GRADUATION



A TABLE OF COMPARISONS

BETWEEN

BOYS      VOCATIONAL PREFERENCE EXPRESSED

IN SCHOOL

and

OCCUPATIONAL FIELD FIVE YEARS AFTER.

<u>Occupational Field</u>	<u>Expressed Vocational preference</u>	<u>Entered Vocation</u>	<u>% entering Vocation Preferred</u>
1. Professions.....	30%.....	33%.....	110%
2. Business..... (executive)	30%.....	16%.....	53%
3. Commercial..... (clerical)	14%.....	18%.....	113%
4. Mercantile..... (selling)	9%.....	16%.....	180%
5. Industrial.....	7%.....	9%.....	130%
6. Undecided.....	10%.....		
7. Proprietors.....	0.....	9%.....	

This table is designed to show the relation which exists between the vocational preference expressed in school and the vocation entered afterwards. The single group which fails to show high correlation is that composed of those boys who hope to become business executives. Here, however, age and experience are factors of great importance. In five years many boys who will eventually enter these positions-- boys with college training who prefer to become business men-- are but one year out of college and have had little time to make progress. The distribution at the end of ten years would probably

A TABLE OF COMPARISONS  
BETWEEN  
VOCATIONAL PREFERENCE EXPRESSED  
IN SCHOOL  
AND  
OCCUPATIONAL FIELD FIVE YEARS AFTER

	<u>Occupational Field</u>	<u>Expressed Vocational</u>	<u>Entered</u>	<u>Vocational</u>	<u>Preference</u>	<u>Correlation</u>
1.	Professions	30%	33%	110%	110%	110%
2.	Business	30%	18%	53%	53%	53%
3.	(executive)					
3.	Commercial	14%	18%	113%	113%	113%
	(clerical)					
4.	Merchandise	2%	18%	180%	180%	180%
	(selling)					
5.	Industrial	7%	8%	130%	130%	130%
6.	Undecided	10%				
7.	Proprietors	0%	2%			

This table is designed to show the

relation which exists between the vocational preference expressed in school and the vocation entered afterwards.

The single group which fails to show high correlation is

that composed of those boys who hope to become business

executives. Here, however, age and experience are factors

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out of college and have had little time to make progress.

The distribution at the end of ten years would probably



show a different line-up. This table would tend to show, in spite of the short interval which has prevented all boys from reaching their chosen field, that there is a very real relation between interest as expressed in vocational preference, and occupation in life, and the these interests are to a high degree, permanent.

A TABLE OF COMPARISONS  
BETWEEN  
GIRLS VOCATIONAL PREFERENCES EXPRESSED  
IN SCHOOL

and

THEIR OCCUPATIONAL DISTRIBUTION FIVE YEARS LATER

<u>Occupational Field</u>	<u>Expressed Vocational Preference</u>	<u>Entered Vocation</u>	<u>entering Vocation</u> <u>preferred</u> <sup>%</sup>
1. Professions .....	20%	15%	75%
2. Business..... (executive)	0	1%	
3. Commercial..... (clerical)	67%	51%	76%
4. Mercantile..... (selling)	1%	3%	
5. Married.....	0	20%	
6. Proprietors.....	0	1%	

This chart well represents the difficulty which confronts counselors, and in fact all who are responsible for the higher education of girls. Within five years twenty percent of the entire class had married, and although not all withdrew immediately from business,

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and

THEIR OCCUPATIONAL DISTRIBUTION FIVE YEARS LATER

<u>OCCUPATIONAL FIELD</u>		<u>EXPRESSED VOCATIONAL PREFERENCE</u>		<u>EXPRESSED VOCATIONAL PREFERENCE</u>	
1.	Professions	20%	15%	15%	75%
2.	Business (executive)	0	1%	1%	75%
3.	Commercial (clerical)	87%	51%	51%	75%
4.	Merchandise (selling)	1%	1%	1%	75%
5.	Married	0	30%	30%	75%
6.	Proprietors	0	1%	1%	75%

This chart well represents the distribution which confronts counselors, and in fact all who are responsible for the higher education of girls. Within five years twenty percent of the entire class had married, and although not all withdrew immediately from business.



it does mean a substantial permanent loss. In order to make this chart tell the whole truth it is necessary to add that 98% of all girls who took commercial training were employed in some one of the clerical lines for which they were trained. This does not include those college course girls who took their degree in colleges specializing in secretarial training, or received commercial education in schools other than the public high school. This 98 % comprises that group which made up the "commercial" course in high school.

No study of interests and their carry-over into life would be complete without including some consideration of further education beyond high school as representing a very definite preference for many students. The study below was intended to show what proportion of those who prepared for college entered college, or some school not of college grade, which provided further education.

TABLE XXVII  
HIGHER EDUCATION

BOYS

<u>Course.</u>	<u>% taking higher education</u>	<u>% not taking higher education</u>
College .....	91%	9%
Technical.....	70%	30%
General .....	33%	67%
Commercial.....	15%	85%

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# TABLE XVII HIGHER EDUCATION

## BOYS

Course	% taking higher education & not taking higher education
College	91%
Technical	70%
General	33%
Commercial	15%



## HIGHER EDUCATION

### GIRLS

<u>Course</u>	<u>% taking higher education</u>	<u>% not taking higher education</u>
College .....	91%	9%
Normal.....	95%	5%
General.....	70%	30%
Commercial.....	7%	93%

## HIGHER EDUCATION

### DEGREE AND NON DEGREE INSTITUTIONS

#### BOYS

Percent of class going on for further education....	46%
" " " " " to degree-conferring institutions.....	36%
" " " " " to non-degree institutions	10%

#### Girls

Percent of class going on for further education.....	33%
" " " " " to degree-conferring institutions.....	7%
" " " " " to normal schools.....	6%
" " " " " to non-degree conferring institutions.....	20%

See chart

HIGHER EDUCATION

GIRLS

<u>Courses</u>		<u>Percent of class going on for further education</u>	
College	81%	81%	81%
Normal	82%	82%	82%
General	70%	70%	70%
Commercial	74%	74%	74%

HIGHER EDUCATION

DEGREE AND NON DEGREE INSTITUTIONS

BOYS

<u>Percent of class going on for further education</u>		<u>to degree-conferring institutions</u>		<u>to non-degree institutions</u>	
81%	81%	81%	81%	81%	81%
82%	82%	82%	82%	82%	82%
70%	70%	70%	70%	70%	70%
74%	74%	74%	74%	74%	74%

GIRLS

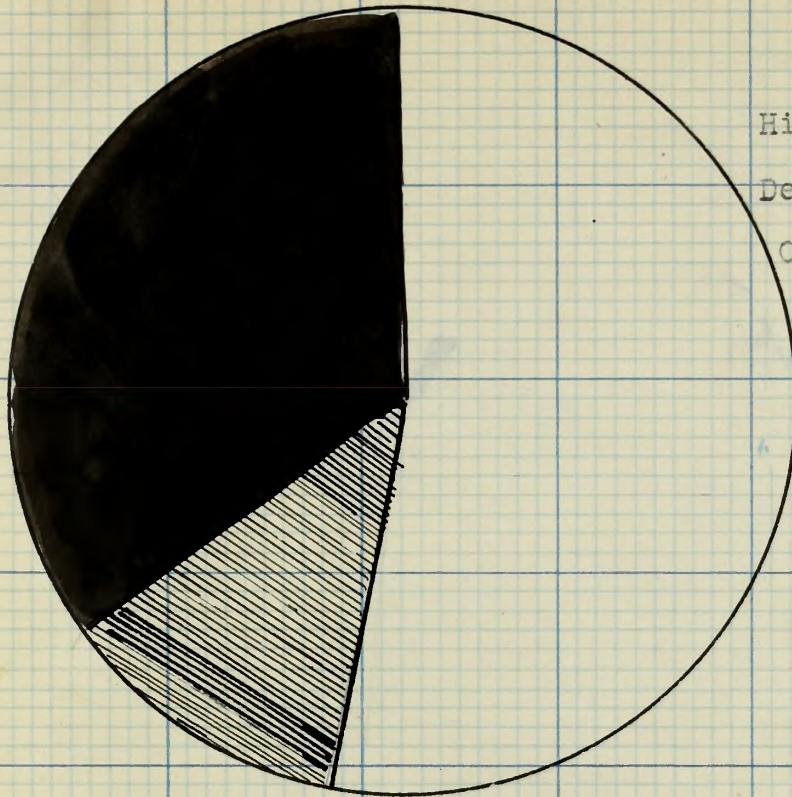
<u>Percent of class going on for further education</u>		<u>to degree-conferring institutions</u>		<u>to non-degree conferring institutions</u>		<u>to normal schools</u>	
81%	81%	81%	81%	81%	81%	81%	81%
82%	82%	82%	82%	82%	82%	82%	82%
70%	70%	70%	70%	70%	70%	70%	70%
74%	74%	74%	74%	74%	74%	74%	74%

See chart



DAYS

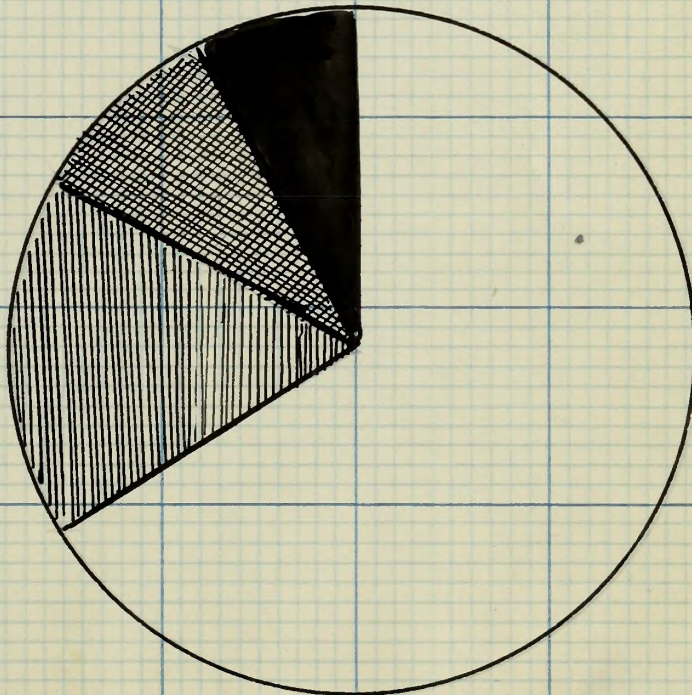
Boys.



Higher education  
46 %  
Degree conferring  
36 %  
Other Schools 10 %

Girls

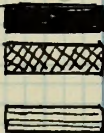
Higher education  
33 %  
Degree conferring  
7 %  
Normal school..6 %  
Other schools 20 %



Degree-conferring

Normal

Other schools







The conclusions which a teacher-counselor can draw from this study are:

1. There is a high degree of permanence in the interests expressed by students in secondary school, especially in the senior year.

2. There is a high degree of probability that students will enter that field of occupation for which they have received secondary school training.

3. The duty of the counselor is, therefore, to make certain that students make their choice of course and of vocational objective intelligently, and with a very clear understanding of all those factors which may influence choice. In employment there seems to be little tendency to change from one field of occupation to another. Advancement is along the line of natural promotion--from clerk to office executive-- from salesman to sales-executive-- rather than from commercial worker to professional, or from salesgirl to bookkeeper, In a few instances office workers have studied at night and passed the bar, or clerks in an office are given opportunities to become salesman, but this is not usual. The tendency seems confined chiefly to two occupations: the lawyer, and the trained nurse.

As a result of this permanence of interest combined with the rigidity which exists in the

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As a result of this permanence of interest combined with the rigidity which exists in the



world of work, there rests upon the school counselor an obligation:

1. To ascertain so far as she is able how far the course which a student follows represents his true vocational interest.

2. To correct mistakes wherever possible, or to broaden the range of student occupational information.

3. To plan courses so broad and flexible that cross-over in school may be possible without excessive loss of time.

1. To locate those pupils who are inherently problems in guidance.

2. To aid great masses of children who year by year depend upon her for counsel in selecting courses and school.

Those pupils who are inherently problems in guidance are those who are potential failures and drop-outs because:

1. They are unable mentally to do school work.

2. They present some obscure mental, physical, temperamental, or social difficulty.

As a result of the study of intelligence as a factor in guidance it appears legitimate to conclude that the counselor can discover one group of potential failures and drop-outs when she locates:

The  
problem  
of the  
counselor

Intelligence

134

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2. To correct mistakes wherever possible, or to

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loss of time.



## CHAPTER VIII

### SUMMARY

Before summarizing the conclusions which it is legitimate to make as a result of this study, it is advisable to repeat that the objective of it was to discover whether or not the teacher counselor could consider either intelligence or interest a reliable index in guidance. The problem of the counselor is two-fold:

1. To locate those pupils who are inherently problems in guidance.
2. To aid great masses of children who year by year depend upon her for counsel in selecting course and school.

Those pupils who are inherently problems in guidance are those who are potential failures and drop-outs because:

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Intel-  
ligence

## CHAPTER VIII

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1. They are unable mentally to do school work.

2. They present some obscure mental, physical, temperamental, or social difficulty.

As a result of the study of intelligence as a factor in guidance it appears legitimate to conclude that the counselor can discover one group of potential failures and drop-outs when she locates:



1. All students with I.Q.'s below 90
2. All students one year or more retarded
3. All students who are both on one of

the lower mental levels and are retarded. The educational risk increases dangerously with each year of retardation.

With these, the more readily recognized problems, located, those students who present the more obscure and more difficultly diagnosed cases will stand out, because many of them although in the upper quartiles of intelligence, are scholastic failures. The cause of this is often found in some emotional, physical, or social condition.

Special  
problems

The factor of interest can not be separated from intelligence, because as it is apparent from certain parts of the study, the student's interest is conditioned by his ability to do the work required of him. Therefore in selection of school and course these two determinants must be considered together.

Interest

1. Mechanical intelligence and interest is not in direct proportion to a student's inability to do academic work, and school or course should be selected on the positive factor of interest, rather than on the negative factor of inability to do school work.

Mechanical  
Intelli-  
gence

2. The great masses of students in the middle ranges of intelligence are almost equally divided in-

1. All students with I.Q.'s below 80  
2. All students one year or more retarded  
3. All students who are both on one of  
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tive factor of inability to do school work.  
2. The great masses of students in the mid-  
dle ranges of intelligence are almost equally divided in-



to those possessing mechanical intelligence and those who do not. The factor, also, should be considered in course counseling.

3. Since the larger amount of school elimination can be traced to inability to do school work, the courses for those in the doubtful zone, should be planned to reduce to a minimum those subjects in which the student has little interest.

4. The vocational interests which are reached in secondary school are permanent to a high degree.

5. Students tend to enter that field of occupation for which they are trained in secondary school.

6. The field of occupation is fairly rigid. Once a student enters a particular section of it he is more apt to progress in it through promotion than to leave it through cross-over into some other part of it.

7. There is a heavy responsibility upon the counselor in the intermediate school to acquaint the student with the range of academic and mechanical experiences, to check up his interests in them through conferences with him and through his school records. His secondary course ought to be selected in the light of those revealed interests.

8. There is a responsibility upon the secondary school counselor to help the student to discover whether

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or not the student has made a proper vocational choice, because once having entered upon employment, a worker's opportunities of transfer from one class of occupation to another, diminished to a slight margin.

This study would tend to show, therefore, that intelligence and interest can be valuable indices to a teacher-counselor-- in any type of school system-- who is responsible for a program of guidance. It calls for nothing beyond usual school equipment-- school data, such as age, years of attendance, marks---- except the group intelligence test, or preferably the battery of intelligence tests. Any teacher of experience can administer such tests; any school system, however limited its budget can supply them. Far from reducing guidance to a mechanical classification of pupils, it would, on the contrary, ensure that problem cases were called to the counselor's attention. Instead of decreasing the extent of personal contact between counselor and pupil, it would make that contact intelligent and vital.

To administer a guidance program in the light of interest and intelligence as important factors in it, is to get away from the overwhelming tendency of present day guidance--- the subjective element of the counselor's personal opinion of the student. Such a program as would be built up would provide for an impersonal,



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a scientific diagnosis of the pupil, which might or might not correspond to the teacher's estimate of him. At least, such a picture of the child would be a truer likeness of him as he is, than the image created by a teacher's report, inevitably colored by her own reaction to him. The problem of the counselor in trying to obtain a clear, impartial view of the pupil from every angle is extremely difficult. Whatever can aid her to this view ought to be placed within her reach. If interest and intelligence are the important factors which they appear to be, then the program of guidance ought to be so organized that they will be incorporated into it, in such a way as to give the counselor the information she needs to aid the pupil to discover his interests and abilities, and once knowing them to shape his future training to develop them for usefulness and service.

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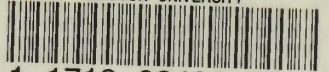
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